

**EMPLOYEE ASSISTANCE PROGRAMME: A WORKPLACE  
INTERVENTION FOR PSYCHOLOGICAL HEALTH AND  
SICKNESS ABSENCE**

**MARZUKI ISAHAK**

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## UNIVERSITY OF MALAYA

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Name of Candidate: **MARZUKI BIN ISAHAK** (I.C/Passport No: **790615-07-5789**)

Registration/Matric No: **MHC 090019**

Name of Degree: **Doctor of Public Health**

Title of Project Paper/Research Report/Dissertation/Thesis ("this Work"):

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# Abstract

**Background:** The Employee Assistance Programme (EAP) for stress is an individual approach worksite-based programme to improve psychological health of the workers. However, the scientific evidence on effectiveness of EAP is still controversial. Most EAP providers claim that the EAP gave positive impacts on personal health and work performance. However, records from employers show a contradictory finding based on their sickness absence, worker's compensation and incomplete work days data. Evidences from Asian countries on this matter were still scarce. In Malaysia, there was no published study on the effectiveness of EAP.

**Objectives:** The objective of this study was to determine the effectiveness of EAP in the improvement of workers psychological health status and sickness absence.

**Methods:** This is a randomised-controlled trial conducted among 150 workers in a public university in Kuala Lumpur. There were 75 participants in both intervention and comparison group respectively. Information on socio-demographic data and self-perceived depression, anxiety and stress using DASS-21 questionnaire was administered at baseline. Biochemical, anthropometry and clinical data were measured pre-intervention. Sickness absence data also was obtained from the Human Resource Department. Psychological work exposures were measured via Job Content Questionnaire (JCQ). EAP interventions given were consisting of stress management workshop, two sessions of individual counselling and relaxation therapy for the period of six months. As for the comparison group, only self-help stress management pamphlet was given to them. All the indicators were repeated in both groups post-intervention.

**Results:** The participants mean ages were 43.0 and 44.2 years old for intervention and comparison group respectively. The majority of participants in both groups were females, Malay ethnicity and in support group of occupational class. The baseline self-perceived psychological symptoms mean score in intervention group were 5.36, 6.35

and 7.89 for depression, anxiety and stress respectively. In comparison group, their mean score for self-perceived depression, anxiety and stress were 4.95, 5.87 and 7.59 respectively. There was similar proportion of high job strain of 21.3% in both groups. Both groups showed a baseline sickness absence rate of more than 2 days over 6 months period.

After the intervention, there were significant improvement in self-perceived depression ( $p < 0.001$ ), anxiety ( $p < 0.001$ ) and stress ( $p < 0.001$ ) score among intervention group as compared to comparison group. Serum cortisol also showed a significant reduction in intervention group post-intervention ( $p < 0.05$ ). However, all the other biochemical, anthropometry, clinical and sickness absence indicators did not show significant difference after the intervention. As for work psychological exposures, EAP managed to significantly reduce participants' job demand ( $p < 0.01$ ) and increase co-workers support ( $p < 0.05$ ).

**Conclusion:** EAP for stress has shown to significantly improve self-perceived depression, anxiety and stress symptoms. Our results proved that EAP is effective in Malaysia especially among university workers.

**Trial Registration:** IRCT201102275923N1

**Funding:** Postgraduate Research Grant, University of Malaya

**Keywords:** Stress Management Programme, Stress, Depression, Anxiety, University.



# Abstrak

**Latar belakang:** Program Bantuan Pekerja (EAP) bagi tekanan psikologi adalah program di tempat kerja yang direka khas untuk meningkatkan kesihatan psikologi dan fizikal. Keberkesanan program ini masih lagi menjadi persoalan ramai terutamanya dari pihak majikan. Kebanyakan pembekal EAP mendakwa bahawa EAP memberi impak positif ke atas kesihatan diri dan prestasi kerja. Walau bagaimanapun, rekod daripada majikan menunjukkan terdapat percanggahan berdasarkan rekod cuti sakit dan tuntutan pampasan oleh pekerja.

Kajian dari negara-negara Asia mengenai perkara ini masih sukar didapati. Di Malaysia, masih tiada kajian yang dilakukan sebelum ini bagi menilai keberkesanan EAP terhadap kesihatan fizikal, psikologikal dan kadar cuti sakit.

**Objektif:** Objektif kajian ini adalah untuk menentukan keberkesanan EAP dalam peningkatan status kesihatan psikologi dan fizikal pekerja dan pengurangan cuti sakit.

**Kaedah:** Kajian ini merupakan kajian rambang terkawal (*randomised-controlled trial*) yang dilakukan di kalangan 150 pekerja di sebuah universiti awam di Kuala Lumpur. Terdapat 75 orang peserta masing-masing di dalam kumpulan intervensi dan kumpulan perbandingan. Di awal penyelidikan, maklumat latar belakang sosio-demografi dan tahap kemurungan, kebimbangan dan tekanan melalui soal selidik DASS-21 telah diperolehi. Maklumat data biokimia, antropometri dan klinikal diukur sebelum intervensi diberikan. Data cuti sakit juga telah diperolehi dari Jabatan Sumber Manusia. Pendedahan kepada risiko psikologi di tempat kerja juga telah diukur dengan menggunakan soal selidik kandungan kerja (JCQ). Intervensi yang diberikan adalah bengkel pengurusan stres, dua sesi kaunseling individu dan terapi relaksasi bagi tempoh enam bulan. Bagi kumpulan kawalan, hanya risalah pengurusan tekanan emosi

diberikan kepada mereka. Selepas intervensi, semua penunjuk diukur sekali lagi dalam kedua-dua kumpulan.

**Keputusan:** Purata umur peserta kajian adalah 43.0 dan 44.2 tahun masing-masing di kumpulan intervensi dan perbandingan. Kebanyakan peserta kajian di dalam kedua-dua kumpulan adalah wanita, berketurunan Melayu dan bekerja di dalam kumpulan sokongan. Paras awal purata markah simptom psikologi di dalam kumpulan intervensi adalah 5.36, 6.35 dan 7.89 masing-masing untuk kemurungan, keresahan dan tekanan. Manakala di dalam kumpulan perbandingan pula, purata markah untuk kemurungan, keresahan dan tekanan masing-masing adalah 4.95, 5.87 dan 7.59. Peratusan peserta yang terdedah kepada tekanan kerja yang tinggi adalah sama di antara kedua-dua kumpulan iaitu 21.3%. Kedua-dua kumpulan juga mencatatkan purata cuti sakit yang hampir sama iaitu 2.23 (kumpulan intervensi) dan 2.01 (kumpulan perbandingan) hari dalam tempoh 6 bulan.

Selepas intervensi, terdapat penurunan yang signifikan dalam tahap kemurungan ( $p < 0.001$ ), keresahan ( $p < 0.001$ ) dan tekanan ( $p < 0.001$ ) di kalangan kumpulan intervensi berbanding dengan kumpulan kawalan. Kandungan serum kortisol juga menunjukkan penurunan yang signifikan di kalangan peserta di dalam kumpulan intervensi ( $p < 0.05$ ). Walau bagaimanapun, petunjuk biokimia yang lain, antropometri, klinikal dan cuti sakit tidak menunjukkan perbezaan yang signifikan selepas intervensi. Bagi pendedahan kepada risiko psikologi di tempat kerja, EAP berjaya mengurangkan beban kerja ( $p < 0.01$ ) dan meningkatkan sokongan rakan sekerja ( $p < 0.05$ ). Walau bagaimanapun, ia juga meningkatkan kebarangkalian untuk terdedah kepada salah satu faktor risiko iaitu kemahiran kerja yang rendah ( $p < 0.01$ ).

**Kesimpulan:** EAP untuk tekanan emosi telah terbukti dapat menurunkan kadar kemurungan, keresahan dan tekanan. Keputusan ini juga membuktikan bahawa EAP berkesan untuk diaplikasi di Malaysia terutamanya dikalangan pekerja universiti awam.

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**Kata kunci:** Program pengurusan stress, Tekanan, Kemurungan, Keresahan. Universiti

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**Marzuki Isahak**

**UM, Kuala Lumpur, Malaysia**

# **Publications**

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1. Serum Cortisol and Cardiovascular Risk Factors, The 42<sup>nd</sup> Asia-Pacific Academic Consortium for Public Health Conference, November 2010, Bali, Indonesia.
2. Work Psychological Risk Factors and Job Strain among Employee in a Public University, International Society of Critical Health Psychology 7<sup>th</sup> Biennial Conference, April 2011, Adelaide, Australia.
3. Employee Assistance Programme for Stress: Psychological and Physical Impacts, The 4<sup>th</sup> Regional Conference on Occupational Health, June 2011, Kuala Lumpur, Malaysia.
4. Depression, anxiety and stress among university workers in a public university. The 1<sup>st</sup> Asia Pacific Clinical Epidemiology and Evidence-Based Medicine, July 2012, Kuala Lumpur, Malaysia.

## **Publications:**

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# List of Symbols and Abbreviations

EAP	Employee Assistance Programme
DASS-21	Depression, Anxiety, Stress Score 21
DASS-42	Depression, Anxiety, Stress Score 42
JCQ	Job Content Questionnaire
FBS	Fasting Blood Sugar
BP	Blood pressure
FSL	Fasting Serum Lipid
IRCT	Iranian Registry of Clinical Trial
WHOQOL-BREF	World Health Organisation Quality of Life - Brief
HPA	Hypothalamo-pituitary axis
CRH	Corticotropin-releasing hormone
ACTH	Adenocorticotrophic hormones
Th1	T-helper cell 1
Th2	T-helper cell 2
IL-12	Interleukin 12
ICD-10	International Classification of Diseases 10
OCD	Obsessive Compulsive Disorder
PTSD	Post-traumatic Stress Disorder
JDC	Job Demand-Control
JDCS	Job Demand-Control-Support
CVD	Cardiovascular diseases
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders IV
GAD	Generalised Anxiety Disorder
SCI	Stress and Coping Inventory



HDL-C	High Density Lipoprotein Cholesterol
LDL-C	Low Density Lipoprotein Cholesterol
TG	Triglyceride
PMR	Progressive Muscle Relaxation
UM	University of Malaya
cm	centimetre
mmHg	millimetre mercury
HRD	Human Resource Department
SBP	Systolic blood pressure
DBP	Diastolic blood pressure
BMI	Body mass index
WC	Waist circumference
CD	Compact disc
WHO	World Health Organisation
UMMC	University Malaya Medical Centre
SD	Standard Deviation
pre <sup>I</sup>	pre-intervention in intervention group
post <sup>I</sup>	post-intervention in intervention group
pre <sup>C</sup>	pre-intervention in comparison group
post <sup>C</sup>	post-intervention in comparison group
$\sigma_{\text{pooled}}$	pooled standard deviation
<i>d</i>	effect size
TC	Total cholesterol
IGT	Impaired glucose tolerance
kg	Kilogram
m	metre

mmol/l	millimole per litre
nmol/l	nanomole per litre
CI	Confidence interval
OR	Odds ratio
NHMS	National Health Morbidity Survey
IDF	International Diabetes Federation
HbA1c	Hemoglobin A1c
IgG	Immunoglobulin G
CONSORT	Consolidated Standards of Reporting Trials
EPHPP	Effective Public Health Practice Project

# CHAPTER 1: INTRODUCTION

## 1.1 Background

Malaysia is a growing and newly industrialised country. In 2007, Malaysia was the 3rd largest economy in South East Asia and the 28th largest economy in the world by purchasing power parity with a gross domestic product for 2008 of \$222 billion and a growth rate of 5% to 7% since 2007 (World Bank & International Finance Corporation, 2011). However, being part of an emerging industrialised nation, the Malaysian workforce is suffering from some of the ills that have befallen developed countries, such as an increased rate of stress-related illnesses. Every 40 minutes, one suicidal death was recorded in the world. In Malaysia, suicidal rate increased from eight in 1980, to 20 per 100,000 population (Hayati & Abdullah, 2008).

The Malaysian Government is fully aware of the effects that it has had on the Malaysian workforce. Generally, in any organisation, an average of about 10% of employees are incapacitated by acute or chronic personal problems such as family and marital problems, financial difficulties, legal problems, drug and alcohol abuse, emotional upsets and career problems (Othman & Abdullah, 1991). All these will affect work performance and productivity. Studies also showed that employees have three times as many accidents, four times the rate of absenteeism, make more health insurance claims and are more likely to make mistakes in their work and take more sick leave, under such circumstances (Andrea, Beurskens, & Metsemakers, 2003). These will add on to the loss of work time and productivity for the organisation. This in fact constitutes a major loss of work time rather than production itself.

Malaysian employers are encouraged to introduce an Employee Assistance Programme to manage mental health problems at the workplace. Member of the Malaysian Mental Health Promotion Advisory Council, Tan Sri Lee Lam Thye said that mental health issues, particularly stress-related issues, among Malaysian employees are a serious matter which should be given attention, so that problems such as depression and other mental health issues can be addressed. He stressed that if the problems were neglected, it will have a big impact on workers and organisation efficiency (Bernama, 2011). Supervisors and managers should be engaged in formal counseling sessions for the purpose of handling grievances, dealing with disciplinary matters, improving performance, disseminating information on benefits, policies and procedures, and helping employees in career development. It is therefore evident that there is a real need for an employee assistance programme to be implemented in the workplace to address the various social and psychological problems being faced by the Malaysian workforce. This is supported by the fact that the demand for mental health services in corporate settings in Malaysia has been growing steadily in recent years.

It has been observed that some of the larger corporations have already initiated either partial or full-fledged employee assistance programmes based in the workplace and on a referral basis to deal employees' personal mental health problems or career concerns. They have come to recognise the importance of developing and preserving valuable human resource.

There is a global outbreak of occupational stress and related disorders in the work environment due to industrialisation and economic movement. Occupational stress has been defined as a 'global epidemic' by the International Labor Organisation (ILO). Not only are there physical and psychological effects, the economic impact is also

substantial. Workplace stress costs United States employers an estimated \$200 billion per year in absenteeism, lower productivity, staff turnover, workers' compensation, medical insurance and other stress-related expenses (Williams et al., 2001).

In most developed countries, occupational stress seems to be a major problem. However, there were no exceptions to the less-developed countries especially in countries that are currently undergoing rapid industrialisation. Workers usually face multiple health risks in the workplace, from exposure to physical and chemical hazards to emerging psychosocial strain associated with modernisation and intensive competition.

Roles of mental health promotion methods in addressing occupational stress are also debatable. Comprehensive stress management programmes looking into both individual and organisational stressors will give a more positive and long-term impact (B. A. Edimansyah, Rusli, & Naing, 2008; Michie & Williams, 2003). Thus, this Employee Assistance Programme has a higher chance of giving a positive impact due to its comprehensive approach.

## **1.2 Research Problems and Public Health Significance**

In public universities, stress among staff tends to interfere with the smooth running of research and education activities. It might affect the productivity, quality and overall cost of operation. A study in a public university in Malaysia revealed there is high job stress among university staff and were predicted by workload pressure, homework interface, role ambiguity and performance pressure (Ahsan, Abdullah, Yong, & Shah Alam, 2009). Currently, stress has been increasingly related to sickness absence and

higher medical cost claims, but occupational stress problems and workload are not openly discussed in the workplace (Sandra et al., 2007). Other than organisational outcomes, stress is also known as a risk factor for the development of hypertension, diabetes mellitus, central obesity, depression and other mental illnesses.

The current economic downturn and unemployment may trigger more stress and mental disorders. Therefore, organisations have to take steps to help stressed workers and intensify efforts to promote good mental health. Workers need good mental health support as an increasing number were likely to suffer from anxiety, severe mental stress and even depression in relation to their jobs and working lives. Mental health is not just about the prevention of mental illness but also the ability to cope with life challenges and to develop a positive attitude. According to the World Health Organisation, depression ranked fifth among the major causes of disability. It is expected to jump to second place by 2020 (WHO, 2011).

In a stressful working condition, depression, anxiety and stress have been recognised as an important outcome measure. Many studies have looked at the association between psychological work exposure and these psychological symptoms (B. A. Edimansyah, Rusli, Naing, et al., 2008; Plaisier et al., 2007; Rusli, Edimansyah, & Naing, 2008; Sanne, Mykletun, Dahl, Moen, & Tell, 2005).

Sanne et al (2005) reported that symptoms of anxiety and depression were associated with high job demand, low job control and low social support individually and particularly when combined. Anxiety and depression in women are strongly associated with low support. Plasier et al (2007) found that incidence of anxiety and depression was predicted by high psychological demand in both men and women employees. While

social support acted as a protective factor against depression and anxiety, the effect was stronger among males compared to females. Plasier et al (2007) also reported that working condition was not affected by sex differences in the association between depression and anxiety. Edimansyah et al (2008) explained that psychological job demand, job insecurity and hazardous conditions are risk factors for higher incidences of depression, anxiety and stress; while supervisor support was found to be a protective factor. In another publication of the same study population, Rusli (2008) added to the evidence by reporting the relationship between stress, depression and anxiety with the World Health Organisation Quality of Life-Brief (WHOQOL-BREF). He found that stress was directly related to physical health, environment conditions and social relationship. Furthermore, anxiety and depression was inversely related to physical health and psychological well-being respectively.

Workplace health promotion on reducing occupational stress has become one of the main agendas at the workplace due to its enormous human and economic cost. Several studies have reported on the effectiveness of multiple types of workplace mental health promotion (Angela, 1999; Caulfield, Chang, Dollard, & Elshaugh, 2004; B. A. Edimansyah, Rusli, & Naing, 2008; Ingrid & Bengt, 2005; Noblet & Lamontagne, 2006; Sandra et al., 2007; J.J.L. van der Klink, Blonk, Schene, & van Dijk, 2001).

Angela (1999) assessed the effectiveness of 13 Employee Assistance Programmes from 1975 to 1987. However, conclusive benefits of EAP could not be derived due to several weaknesses such as the lack of controlled research designs, short intervention period, missing data, weak operational methods and no reliability and validity evaluation of the instruments used. However, Edimansyah et al (2008) suggested that even with a short duration individually-focused stress management training, it is still effective in

significantly reducing some aspects of self-perceived depression, anxiety and stress in male automotive workers.

Van der Klink et al (2001) reported a small but significant positive overall effect of 48 workplace stress management programmes in his meta-analysis study. The biggest effect was found in cognitive-behavioural and multimodal interventions, while there were smaller effects in relaxation techniques. Surprisingly, the organisation-focused intervention was found to be not statistically significant in the reduction of stress.

Caulfield et al (2004) looked into six intervention studies on stress management at the workplace in Australia. The author found that only one intervention looked into organisational management while the others focused primarily into individual intervention. There was no effect in reducing a participant's physical and psychological ill health in individually oriented intervention studies. A similar result was also reported by Noblet & Lamontagne (2006) when they found that individual-level strategies can only offer short-term solutions as compared to an organisational approach.

Different methods in reducing stress were advocated by Ingrid et al (2005) where they assessed the effects of a worker's knowledge on psychosocial work indicators and a structured method to implement changes based on such knowledge. They found that these methods can significantly improve performance feedback, participatory management, skills development, efficiency, leadership, employee well-being, and work-related exhaustion. This one year intervention programme also managed to reduce absenteeism and improve productivity.



Stress management can be divided into two approaches, an individual-focused approach and an organisational-focused approach. The former aims to teach an individual stress coping strategies and give them psychological resources to avoid stressful conditions. While the latter aims to improve stressful work conditions by redesigning the work environment and organisational development.

The present study on the Employee Assistance Programme is focused on individual coping mechanisms. The approaches were based on group stress management workshops, individual counselling and stress relaxation therapies. The stress relaxation therapies included deep breathing exercises, progressive muscle relaxation, musical and imaginary therapy. Both recent meta-analysis and quasi-experimental studies reported that individually-approached stress management intervention are effective in reducing psychological symptoms (B. A. Edimansyah, Rusli, & Naing, 2008; J.J.L. van der Klink et al., 2001).

The Employee Assistance Programme (EAP) is capable of tackling this problem through a holistic approach with the involvement of both employers and employees. It has grown dramatically, yet the effectiveness of these programmes has been called into question. Many studies were done to prove the effectiveness of this programme in view of the reduction of stress, sickness absence rate and medical cost claims. Research aimed at EAP outcome evaluation has been limited to cost-benefit and utilisation studies. However, none of the studies were done in Malaysia. Furthermore, global studies conducted on EAP clinical outcome evaluation are limited. Researchers are more interested at the organisational effect of EAP (sickness absence and medical claims) rather than the personal health of the employee (Angela, 1999).

In this study, the investigator will look into the personal and organisational outcome of EAP. For the personal outcomes, the investigator is interested to know the effects of EAP in the reduction of self-perceived depression, anxiety and stress, control of blood sugar, blood pressure and cholesterol level. As for the organisation, the outcome on reduction of sickness absence rate was analysed. The two aims of the study correspond directly to the main objective of EAP; that is, most organisations adopt EAP in order to improve employee health and well-being and reduce productivity and performance problems among employees. Therefore, this study aims to give a strong local finding to advocate Malaysian employers to implement the Employee Assistance Programme in their organisations. Furthermore, EAP will not only give an organisational effect such as reducing sickness absence; but also improve workers health in terms of reduction in depression, anxiety and stress, blood glucose and blood pressure control.

If EAP is successful in improving employee health, but reductions in productivity problems are not achieved, then such programmes could be considered an employee benefit rather than a direct benefit to the organisation. If the second objective is achieved but the first is not, the programme may have more usefulness to the employer than the employee (Macdonald, Lothian, & Wells, 1997). The most desirable scenario is where both objectives are achieved and both the employee and the employer clearly benefit. Many EAP providers claims that both objectives can be achieved; however, empirical evidence to substantiate this conclusion is largely unavailable (Macdonald et al., 1997). Therefore, the value of this study is its dual emphasis in terms of improving employee well-being and organisational performance problems.

### **1.3 Study Rationale**

University workers were chosen as our study population because many previous reported studies indicate that universities workers' face high levels of stress especially when the quality of the university is now being assessed and ranked accordingly (Ahsan et al., 2009; Anthony & Richard, 2001; Archibong, Bassey, & Effiom, 2010; Huda et al., 2004a; Reda, 1996; Walter, Phyllis, & Nicholas, 1986; Winefield, 2000; Winefield et al., 2003). The Government and public are very concerned about the university ranking system. Many organisations in Malaysia may not be aware of the impact of stress, absenteeism, occupational accident and stress-related illnesses on the overall productivity on their workforce. This ignorance is mainly due to the unavailability of local research on the effectiveness of EAP.

The rationale of this study:

1. Findings on the prevalence of self-perceived depression, anxiety, stress and their psychosocial work exposure in university could be used to plan an intervention programme to reduce workers stress, anxiety and depression.
2. The effectiveness of the Employee Assistance Programme could be used comprehensively with other wellness programmes in the university to improve workers physical and psychological health and sickness absenteeism.
3. The findings on the effectiveness of EAP in this study can be used to advocate other public and private organisations in Malaysia to establish Employee Assistance Programmes at their workplace.

## **1.4 Study Objectives**

### **1.4.1 General objective**

The general objective is to determine the effectiveness of EAP for stress in the improvement of psychological health and sickness absence.

### **1.4.2 Specific Objectives**

1. To describe the baseline socio-demographic characteristics, psychological health status and sickness absence rate among participants in the intervention and comparison groups.
2. To determine the effectiveness of EAP for work stress intervention in reducing of depression, anxiety and stress symptoms.
3. To determine the effects of EAP for work stress intervention in reducing work psychological exposure and sickness absence.
4. To determine the effectiveness of EAP for work stress intervention in controlling blood pressure, serum cortisol, fasting blood sugar and fasting serum lipid level.

## **1.5 Research hypotheses**

1. Null hypothesis: There is no difference in the mean differences of psychological symptoms score (depression, anxiety and stress) between participants in EAP intervention and comparison group.

Alternative hypothesis: There is a difference in mean differences of psychological symptoms score (depression, anxiety and stress) between participants in EAP intervention and comparison group.

2. Null hypothesis: There is no difference in mean differences of work psychological exposures between participants in EAP intervention and comparison group.

Alternative hypothesis: There is a difference in mean differences of work psychological exposures between participants in EAP intervention and comparison group.

3. Null hypothesis: There is no difference in mean differences of sickness absence between participants in EAP intervention and comparison group.

Alternative hypothesis: There is a difference in mean differences of sickness absence between participants in EAP intervention and comparison group.

4. Null hypothesis: There is no difference in mean differences of blood pressure, fasting blood sugar and fasting serum lipid level between participants in EAP intervention and comparison group.

5. Alternative hypothesis: There is a difference in mean differences of blood pressure, fasting blood sugar and fasting serum lipid level between participants in EAP intervention and comparison group.

## **1.6 Thesis Contributions**

This thesis has two main contributions. The first part of this study describes the socio-demographic characteristics, self-perceived psychological symptoms, work psychological exposure, sickness absence, physical measurements and lab investigations results of participants. This physical and psychological description among workers in a public university will help the EAP counselor understand the workers' health. Work psychological exposure act as a psychological risk assessment. By knowing this, an EAP counselor can justify the risk of developing psychological symptoms among

workers in university. The EAP provider will also have a better understanding of the work and work environment.

The second and main part of the contribution is on the understanding of the effectiveness of the Employee Assistance Programme (EAP) for the management of psychological problems at the workplace. Employers and policy makers can make use of the result in this thesis to decide on the type of stress management programme to be used at the workplace. EAP providers will also have scientific evidence on the effectiveness of the programme and can use it to promote utilisation and subscription to this programme.

## **1.7 Operational definition**

### **1. Employee assistance programme (EAP)**

Employee Assistance programmes are designed to provide human resource psychological and counseling services. In this study, services provided to the clients are a 4-hour workshop on the stress management programme, application of stress relaxation therapy and a two monthly one-to-one counseling or on a referral basis. EAP initiatives are integrated into the workplace as part of the health, safety and training programme of the company. The main aim of an EAP is to maximise the health consciousness of employees so that they can return to work with renewed strength and capabilities.

### **2. Depression**

Depression is defined as a lowering of mood from the normal state. In this study, depression was measured based on a self-perceived abnormal emotional state characterised by dysphoria, hopelessness, devaluation of life, self-deprecation and lack

of interest/ involvement, anhedonia and inertia according to the depression component in the Depression, Anxiety and Stress Scale (DASS) (S. H. Lovibond & Lovibond, 1995).

### 3. Anxiety

Anxiety is a state of emotional arousal by both somatic and autonomic response and the anticipation of negative events which typically, but not exclusively, are psychological in character. Anxiety was measured in this study based on the Depression, Anxiety and Stress Scale (DASS) which comprise of self-perceived autonomic arousal, skeletal musculature effects, situational anxiety and subjective experience of an anxious affect (S. H. Lovibond & Lovibond, 1995).

### 4. Stress

Any event in which environmental demands, internal demands or both, tax or exceed the adaptive resources of an individual. In this study, stress was measured with self-perceived difficulty in relaxing, nervous arousal, easily upset/agitated, irritable/over-reactive and impatient according to the stress component of the Depression Anxiety Stress Scales (DASS) (S. H. Lovibond & Lovibond, 1995).

### 5. Fasting Blood Sugar (FBS)

FBS was measured via venous blood sugar level in unit of mmol/L. Normal FBS: 3.5 – 5.8 mmol/L, Impaired Glucose Tolerance (IGT): 5.9 – 7.8 mmol/L, Diabetes Mellitus: > 7.8 mmol/L.

### 6. Fasting Serum Lipid (FSL)

FSL was measured via venous blood serum in unit of mmol/L in the form of total cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL) and low density lipoprotein (LDL).

Optimum TC: 5.2 mmol/L, borderline TC: 5.3 – 6.2 mmol/L, high TC: >6.2 mmol/L.

For triglyceride, a value of more than 2.2mmol/L was considered high.

HDL of less than 0.9mmol/L and LDL level of more than 3.3 mmol/L was unhealthy (Bethesda, 2001).

7. Blood pressure (BP)

The pressure exerted by the circulating volume of blood on the walls of the arteries and veins and on the chambers of the heart. Blood pressure is regulated by the homeostatic mechanisms of the body by the volume of the blood, the lumen of the arteries and arterioles, and the force of cardiac contraction. In the aorta and large arteries of a healthy young adult, blood pressure is approximately 120 mm Hg during systole (systolic blood pressure) and 70 mm Hg during diastole (diastolic blood pressure).

8. Waist circumference

Normal waist circumference was < 88cm for female and <102cm for male (Bethesda, 2001).

7. Sickness absence

Sickness absence was defined as an absence from work due to any reason and medically certified by a registered medical officer.

8. Stress relaxation therapy

Stress relaxation therapy is a combination of several therapies that are believed to be able to control and reduce a person's stress level. The therapy includes deep breathing, progressive muscular relaxation, imaginary and musical therapy.

9. Job decision latitude

The working individual's potential control over his tasks and his conduct during the working day.

10. Job skill discretion

The degree to which the job involves learning new things, novelty, absence of routinisation, creativity and development of the individual's special abilities.

11. Decision-making authority



The individual's freedom to make decisions about his own job, influence over the work group and influence over the company policy.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Stress, depression and anxiety

### 2.1.1 Stress

#### 2.1.1.1 Definition of stress

The Oxford dictionary defines stress (noun) as a state of mental or emotional strain or tension resulting from adverse or demanding circumstances (Oxford, 2011). Earlier on in the 1930s, stress was defined by a well-known endocrinologist Hans Selye as a non-specific response of the body to any demand made upon it (Selye, 1956). The demands can be from environmental or internal or both and stress will appear when it exceeds the adaptive resources of a human, social or tissue system. These adaptive resources levels were varied depending on human coping ability and physiology (Selye, 1975).

#### 2.1.1.2 Types of stress

Stress can be divided into positive, excessive and prolonged stress. Positive stress usually acts as an enhancer to our life by making it exciting and challenging. Whereby in excessive and prolonged stress, it usually has a harmful effect on the human physical and psychological being. Positive stress is a motivational factor up to a certain level and is referred to as eustress. After exceeding the threshold level, the motivational factor would become a burden and is then called distress (LaDou, 1997). Lazarus (1974) earlier debated on an issue of whether the body response toward stress is specific to the psychodynamics of the stressful event or merely general and non-specific. He also

argued that an event must be appraised as a stressful situation and these cognitive processes will determine the magnitude of the effects whether it is malignant or benign.

#### 2.1.1.3 Symptoms of stress

Stress can be recognised by the presence of various types of non-specific symptoms. Among frequently reported symptoms are breathlessness, palpitation, muscle ache, nausea, vomiting, dizziness, nightmares, constant tiredness, onset of allergies, chronic indigestion, nail biting, abdominal pain, constipation, diarrhea, finger or foot tapping, anger, suicidal thought and violence (Leino, 1989; Montoro et al., 2009; Olkinuora et al., 1990; Wruble, Rosenthal, & Webb, 1982). Wruble et al (1982) reported that patients with stress-related vomiting usually have more insight relating to their problem. These psychogenic vomiting patients tend to suggest a referral to see a psychiatrist even though most of them are not psychiatrically disturbed.

#### 2.1.1.4 Physiology of stress

The endocrine system is correlated very closely with the neurochemistry and physiology of stress. Physical or psychological stressor will elicit an action from three main glands in our body namely the hypothalamus and pituitary glands in the brain and the adrenal glands, which are located above the kidneys. These cascades of hormonal secretion involve mainly cortisol, epinephrine and norepinephrine hormones. All these hormones will prepare our body for a fight or flight action by regulating cardiovascular function, energy metabolism, immune-system activity and brain chemistry (Talbot, 2007). When a brain perceives a stressful condition, our hypothalamus responds by secreting a corticotropin-releasing hormone (CRH). The CRH will then stimulate the secretion of adrenocorticotrophic hormones (ACTH) by the pituitary gland. The ACTH will reach an

adrenal gland in the abdomen and stimulate it to secrete cortisol and other glucocorticoids. This metabolism reaction will deal with the stressor and the stress response will end.

However, in the case of a very high stress level condition, overstimulation of this endocrine system will cause loss of appetite, insomnia and negative adaptive lifestyle such as excessive smoking, alcohol intake or drug usage (Linton, 2004; Steptoe, Wardle, Pollard, Canaan, & Davies, 1996; Utsugi et al., 2005). Steptoe (1996) demonstrated that an increase in exam-related stress among university students affected their healthy lifestyle by an increase in the smoking rate especially among women and a decrease in physical activity. In a prospective study of sleeping problems, poor psychosocial work environment significantly increased the risk of insomnia by double (Linton, 2004). Utsugi (2005) also reported that occupational stressors especially with a high level of effort imbalance were associated with insomnia in both men and women.

Furthermore, if the stressor is persistent, cortisol and glucocorticoids will be chronically elevated and cause multiple adverse effects. These include fat gain, elevated blood sugar, high blood pressure, cardiovascular disease and suppressed immune-system function. (S. Cohen, Janicki-Deverts, & Miller, 2007; Wolff, 1953). Besides that, other studies also reported different stress-related physical and psychological problems such as anxiety, depression, headache, muscles spasm, abdominal pain, loss of concentration and fatigue (D'Amico et al., 2000; McGrath, Goodman, Firestone, Shipman, & Peters, 1983; Reynolds & Hovanitz, 2000).

Even though abdominal pain has been related to stress, other organic causes need to be ruled out. McGrath et al (1983) emphasised that the diagnosis of psychogenic abdominal spasm need to be associated with psychological exposure such as family problems, school problems or extreme personality characteristics. D'amico (2000) confirmed that a headache is a common stress-related physical problem. Relationship between stress and frequency of headache further proved Reynolds et al (2000). However, after adjusting for the influence of depression; the relationship only seems significant in women. Furthermore, the relationship was not significant in the oldest 10% of the sample.

Regarding allergies, Montoro (2009) found that stress can cause the onset of allergy and exacerbate an existing allergy. He also explained the relationship between stress and our immune system. In a prolonged stressful condition, cortisol, norepinephrine and other neuropeptides will elicit changes in the immune system. There will be an imbalance in the T-helper cell 1 (Th1) action and T-helper cell 2 (Th2) responses. The hypothalamo-pituitary axis (HPA) will be activated to persistently secrete glucocorticoids hormones. These hormones will reduce Interleukin 12 (IL-12) secretion and further reduce Th1 mediated response. A persistent balance disruption of Th1 and Th2 in favour of the Th2 action will lead to the stimulation of an allergy onset (Montoro et al., 2009). In a study among blue-collar workers, Leino (1989) suggested that stress symptoms and musculoskeletal disorders and spasms were related. Stressed workers tend to contract their muscles for a prolonged period and persistently which leads to muscle spasms and pain especially in the neck, shoulder and back muscles.

In a study among Finnish physicians, Olkinuora (1990) found that suicidal intent was higher among those with higher burnout specialties, that is dealing with incurable, chronically ill or dying patients as compared to those with lower burnout specialties, often dealing with curable and favorable prognoses patients. Highest burnout was also found among physicians who work in public hospitals as compared to private and university hospitals.

#### 2.1.1.5 Stress and a healthy lifestyle

Physical activity and exercise can reduce some of the detrimental effects of chronic stress exposure. This will stimulate production of dopamine and serotonin, which are anti-anxiety and anti-depressant chemicals that are produced in the brain. This chemical activity is responsible for helping out the stress response (Talbot, 2007). In a study among 384 adolescents, it was found that exercise managed to reduce their stressful life events on health (Brown & Siegel, 1988).

Stress is also associated with obesity because of an excessive secretion of the key stress hormone namely cortisol, and reduction of anabolic hormones secretion. All this will cause the body to store fat, lose muscle, slow metabolic rate and increase appetite (Talbot, 2007). Therefore, it is important to educate participants on this fact.

#### 2.1.1.6 General Adaptation Model for stress

Stress is the effect of a condition, while stressor is the source of stress. Selye (1982) explained the consequences of stress by using a diagram of the General Adaptation Model. Figure 2.1 shows three stages of the General Adaptation Syndrome Model namely alarm, resistance and exhaustion stages. Acute stressors stimulate the body response in

the alarm stage. In this stage, the body will actively respond by releasing energy stores triggering the fight or flight response. Stress hormones like adrenaline and cortisol will also be released. This acute stress response is vital for survival; however a chronic stress response is detrimental to long-term health in many ways. Energy resource will gradually deplete if the stressors are persistent or prolonged. This is the resistance stage. The body will try to apply some coping strategies but this is only for a short period of time before the energy resource used is greatly reduced. The last stage would be the exhaustion stage. At this stage, all energy stores might have been used and the body cannot function normally. Symptoms like sweating and palpitation will appear as a result of autonomous nervous system stimulation. Persistent stressor may result in long-term physical and psychological effects. Decompensation will take place after that in the form of illnesses such as depression, diabetes mellitus, hypertension and cardiovascular complications (Selye, 1982).

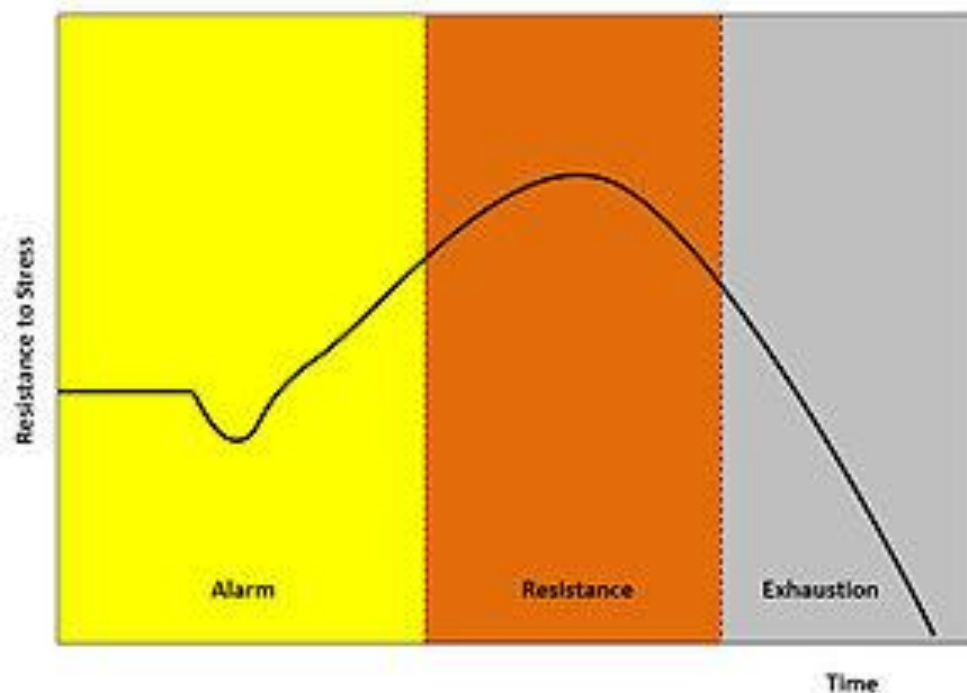


Figure 2.1: The diagram of the General Adaptation Syndrome Model

### **2.1.2 Depression**

Previously, depression was termed as melancholia. Depression happens when one loses external input (relationship) or the internal positive dimension of self-experiences to maintain good feelings. It involves multiple complex and disabling symptoms. At the physiological level, neurotransmitters systems were deranged and affected the secretion of noradrenaline, serotonin and dopamine hormones. These hormones will then inhibit feelings of joy and the desire to do interesting things. Negative feelings such as anxiety, shame and anger will be stimulated. In the psychological aspect, people with depression will not only be feeling bad, but also often see their future as negative and useless.

The classification of depression in the current ICD-10 by World Health Organisation distinguished depression into several types namely:

- i) Mild, moderate or severe depression either with or without psychotic symptoms.
- ii) Bipolar affective disorder.
- iii) Recurrent depressive disorder.
- iv) Persistence affective disorder.
- v) Other specific and non-specific mood disorder.

Assessment of depression involves three main domains of function which is psychological, biological and social. Becks Depression Inventory is the most commonly used questionnaire to measure for depression symptoms (Aalto, Elovainio, Kivimäki, Uutela, & Pirkola, 2012). For overall measurement of psychological symptoms, the Depression, Anxiety and Stress Score (DASS) is commonly used. The questionnaire measures three different disorders with a collection of questions asking about of the



symptoms experienced within the last one week. The score will then divide the symptoms into normal, mild, moderate, severe and very severe stage.

#### 2.1.2.1 Occupational risks for depression

Workplace bullying was reported as a risk factor of depression among the French working population. Increasing exposure, past exposure and the experience of observing bullying are significantly associated with increasing depression severity (Niedhammer, David, & Degioanni, 2006). Depressive symptoms and medication were reported to disturb work performance (Berndt et al., 1998) and is claimed to reduce work safety (Haslam, Atkinson, Brown, & Haslam, 2005). Depressed workers are usually not prepared to face such effects and this makes the condition worse. The condition usually was not disclosed to their colleagues due to the stigma attached to the mental illness. Therefore, there will be no social support received from their colleagues (Haslam et al., 2005). Depression can affect level of perceived work performance according to its severity. A programme that can reduce depression symptoms can significantly increase work performance. The increment was quite rapid and only takes a month to fully show results on work performance (Berndt et al., 1998).

#### 2.1.2.2 Management of depression

Treating depression depends on the severity of the disorder. Mild to moderate depression can be treated with counselling and psychotherapy to prevent them from worsening. At the advanced stage, a combination of pharmacological and non-pharmacological treatment is needed. Counselling aims to facilitate contact with internal positive self-objects so as to eliminate representation of self as useless and unable and

change it to worthy and being able (Gilbert, 2000). Physical exercise was also found to be effective in reducing the risk of depression among employees with passive jobs and a sedentary lifestyle whom are at a higher risk of depression (de Zeeuw, Tak, Dusseldorp, & Hendriksen, 2010). The management should allocate a period for physical activity in order to maintain high productivity among their workers.

### **2.1.3 Anxiety**

#### **2.1.3.1 Definition and types of anxiety disorder**

Disorders that are presented with symptoms of fear, apprehension, nervousness and worry have generally been referred to as anxiety. Features of mild anxiety are often vague, but moderate to severe anxiety has very obvious symptoms and can have a serious debilitating impact on daily life activities. According to the International Classification of Diseases (ICD-10), anxiety disorder includes specific phobias, social phobia, agoraphobia and panic disorders, generalised anxiety, obsessive compulsive disorder (OCD), post-traumatic stress disorder (PTSD), hypochondriasis and somatisation disorders (WHO, 1993).

Characteristics of generalised anxiety disorder include excessive and prolonged worry about non-specific life events, objects or situations (Dugas, Anderson, Deschenes, & Donegan, 2010). They will feel anxious about their belongings especially money, health, family, school, house and work. This inappropriate and unrealistic fear usually leads to other physical and psychological symptoms which might worsen the condition and affect their daily activities. The main symptoms are varied but include persistent nervousness, hand trembling, tense muscles, sweating, giddiness, palpitations, light-

headedness and epigastric discomfort. The patient will also often admit to the fear that they or their relative will shortly become ill or have an accident (WHO, 1993).

Characteristics of panic disorder are sudden or brief attacks of intense terror and apprehension that cause symptoms of shaking, confusion, dizziness, nausea, shortness of breath and feelings of unreality (depersonalisation or derealisation). Frequently, they will also experience a secondary fear of dying, losing control, or going mad. The panic attack usually starts abruptly and may last for a few hours. Typically, panic disorders occur after prolonged stress or a terrifying experience, but unprompted attacks might happen as well. Patients with a panic disorder are very alert on any subtle changes in their normal body function and interpret it as a life threatening event. This hyper vigilance will lead to hypochondriasis. Furthermore, panic attacks will lead the sufferer to expect another attack in future and this will cause extreme behavioural changes in order to avoid it. Symptoms of depression need to be explored as panic attacks are probably secondary to depression (Thorpe, Sigmon, & Yoon, 2012).

Phobic disorder is an anxiety condition induced by an exposure to a certain well-defined situation that is not currently dangerous. Patients experience excessive fear trying to avoid this situation. The main symptoms of phobic disorder are palpitation or feeling faint. Fears of dying and losing control are the secondary symptoms. Phobic anxiety and depression are the two conditions that usually coexist. A fairly well-defined group of phobias encompassing the fear of leaving home, entering shops, crowds and public places, or travelling alone in trains, buses or planes are known as agoraphobia. Presentation of agoraphobia is commonly combined with depression, obsessional and

social phobia symptoms. Agoraphobic patients usually experience less anxiety because avoidance of the phobic situation is often prominent (Thorpe et al., 2012).

Social phobia is another type of anxiety disorder whereby the sufferer feels fear of being scrutinised by other people leading to avoidance of social situations. It is sometimes associated with low self-esteem. Common symptoms of social phobia are nausea, blushing, hand tremors and urgency of micturition. In worst cases, symptoms may progress to panic attacks.

The vital feature of obsessive compulsive disorder (OCD) is recurrent obsessional thoughts followed by compulsive acts. Repeated similar ideas and images come into the patient's mind obsessively. Patient will feel distress and try to avoid or ignore such thoughts. However, they often fail to ignore the stereotype thought and recognise it as their own thought, even though it is unintentional and unacceptable. Similarly, compulsive acts are stereotype and repetitive except it is in the form of an action. Inherently, they do not enjoy it and don't think it is a useful task. They usually recognise it as useless and repeatedly try to resist it. Anxiety symptoms will present and get worst especially when the patient attempts to resist the obsessive thought.

Post-traumatic stress disorder (PTSD) is an anxiety symptom that arises as a delayed or protracted response to a stressful event or situation of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone. Common symptoms include repeated flashback of disturbing memories, nightmares, sense of numbness and emotional blunting, social detachment, insensitive to surroundings, anhedonia and avoidance of activities and situations reminiscent of the

trauma. Frequently, a state of autonomic hyper arousal with hyper vigilance will enhance insomnia and startle reaction. The predisposing factors of PTSD are compulsive and asthenic personality traits or a previous history of neurological disease. Anxiety and depression are the common coexisting condition and can be associated with suicidal ideation. The latency period of response may range from a few weeks to months. Prognosis is usually good even though the severity might fluctuate throughout the period of recovery stage. In chronic cases, personality change can be permanent.

#### 2.1.3.2 Workplace anxiety

Workplace anxiety is a growing problem and commonly stated as work stress and burnout (Nagata, 2000; R. H. Rahe, Taylor, & Tolles, 2002). Regardless of their source of anxiety, the symptoms can interfere with work productivity and performance. Typical types of workplace anxiety are social phobia, generalised anxiety and hypochondriasis (Linden & Muschalla, 2007; Muschalla, 2009).

Anxiety can occur by either specific stimulus-related or generalised in nature. It appears in the form of panic attacks, phobia or worrying. Level of trait-anxiety very much affects individual threshold towards acute anxiety reactions (R. S. Lazarus, 1991). There are multiple types of anxiety at the workplace that has been reported elsewhere namely work-related anxiety, work-related panic, work-related phobia, work-related social phobia, work-related generalised anxiety and post-traumatic stress disorder (M. Linden & Muschalla, 2007; Muschalla, 2009). Patients with social anxiety disorder had significantly decreased productivity as compared to other types of anxiety disorders and they are more likely to be unemployed (Moitra, Beard, Wisberg, & Keller, 2011). Workers with anxiety disorders usually require certain restrictions at the workplace such

as restriction in the type of work, need for a support person, difficulty in changing jobs and restricted number of work hours (Waghorn & Chant, 2005). Impact of anxiety disorder on indirect costs were high due to their high prevalence and this can be reduced through early detection, preventive measures and optimised therapy (Konnopka, Leichsenring, Leibing, & König, 2009).

## **2.2 Occupational Stress**

### **2.2.1 Sources of occupational stress**

Occupational stress is a condition of stressful events due to workplace-related stressors. It occurs when the job demand exceeds the workers ability and needs. Workers ability can be in the form of physical capacity, skills and knowledge or educational background. Sometimes there is an imbalance between job demand and a worker's needs and expectations (J. French, Caplan, & Harrison, 1982). The cause of workplace stressors can be divided into organisational, task and role. Examples of organisational causes are management change, inadequate communication, interpersonal conflict, poor career development, job insecurity and conflict with organisational goals. Task stressors are quantitative and qualitative job overload or underload, low decision making authority, responsibility for the lives and well-being of others and exposure to any kind of hazards. Role ambiguity, role conflict, inadequate resource and inadequate authority to accomplish work are the role-related stressors (Gillespie, Walsh, Winefield, Dua, & Stough, 2001; Michie, 2002; Yahaya et al., 2009). Role ambiguity is a condition when work instruction is not clearly transferred or merely incomplete. Yahaya et al (2009) found a relationship between occupational stress and role ambiguity among 100 employees in the Company Commission of Malaysia.

In the era of rapid economic growth and productivity demand, workplace-related stressors are becoming more dominant than any other source of stress. Percentage of working population had also risen and age of retirement is delayed. In Malaysia, the labour force participation rate is 65.5% and only 3.3% of population aged 15 to 64 years old are unemployed (Jabatan Statistik Malaysia, 2013). Hence, work and workplace are often blamed as the cause of stress in their daily life more than any other type of stressor such as family problems, failed personal relationship, financial crisis, poor health condition and daily irritants. Furthermore, the latter problems are claimed to be due to problems at the workplace. Due to technology advancement, people started to work from home during working hours and even bring work home after working hours. Boundaries between the workplace and home had been loosened and these two big stressors will combine synergistically. Home is no more seen as a place to relax and have a good time with family. Hobbies have been ignored and there is no more time for physical activities and entertainment (Detels, McEwen, Beaglehole, & Tanaka, 2002).

### **2.2.2 Relationship between pressure and work performance**

Figure 2.2 shows the inverted-U relationship between pressure and performance. This relationship focused on job performance where workers will reach their best performance when optimum stress has been applied to them. Job performance will be reduced when pressure is too low or too high. The former will cause boredom and the latter will initiate anxiety and unhappiness.

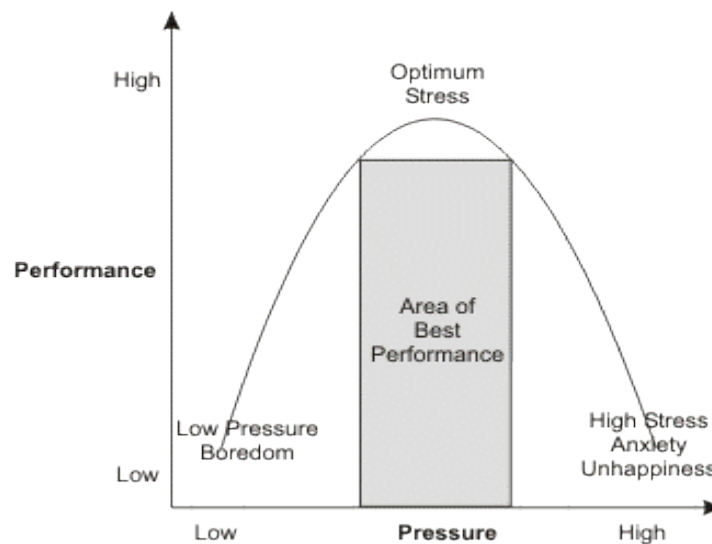


Figure 2.2: The inverted-U shape relationship between pressure and performance.

Emotional exhaustion, anxiety and depression were the common debilitating psychological health outcomes. It has been proven that these outcomes are linked to stressful work conditions namely high job demand, low supervisor support and low decision making authority in cross-sectional and prospective studies. Others were physical outcomes such as immune deficiency and cardiovascular diseases (Michie & William, 2003; Sapolsky, 2003). Immune deficiency was due to an increase in serum cortisol level in the blood stream and this will make workers more susceptible to infection. As for cardiovascular diseases, Landsbergis et al (1998) found that it was due to negative lifestyle behavior such as a sedentary lifestyle, excessive smoking, and increase in food intake especially fatty and salty food (Landsbergis et al., 1998).

In the current situation of price hikes and inflation, most workers in the low and middle-income group are greatly affected by the increase in expenses in their daily lives and might fall victim to anxiety and stress. Two thirds of workers reported having severe stress, burnout and are susceptible to illness ever since the financial crisis. The



combination of stress from low income along with high job insecurity poses a high risk to health.

### **2.2.3 Effects of occupational stress**

The effect of occupational stress is not only constrained to personal well-being but also the organisation at large. It is considered a major problem towards an effective functioning organisation. Even though at a certain level, stress will be pictured as a pushing factor, too much of it will deteriorate productivity, increase turnover rate and contribute to sickness absenteeism (M. Dollard, Winefield, Winefield, & de Jonge, 2000; Michie & William, 2003). These are the main organisational impact of occupational stress.

Data from the American Psychological Association in 2009 reported that among all the sickness absence reported, 60% were due to stress-related illnesses. These illnesses cost the companies more than USD57 billion a year. However, if all the organisational and health impact are included, estimated cost to the U.S. industry was more than USD300 billion a year (Rosch, 2001). Britain Health and Safety Executive reported that in the United Kingdom, cost of occupational stress to the employers goes up to £381 million per year. The estimated costs include cost of absenteeism, workers' turnover, reduced productivity and medical, legal and insurance cost (Davies & Teasdale, 1999). In Australia, AUD14.81 billion per year is the cost that Australian companies have to pay due to stress-related presenteeism and absenteeism. The Australia Medibank-commissioned research also reported that an average of workers day lost per year was 3.2 days/year (Medibank-commissioned, 2008). These costs still does not include other hidden costs such as replacing staff who have resigned, skill development of new staff and reduced productivity while the post is still vacant.

The estimated number of days lost due to stress has increased year by year (J. Jones, Huxtable, Hodgson, & Price, 2003) and recession has forced companies to downsize their human resource, optimizing all the resource available and intensifying employees' work (Sparks, Faragher, & Cooper, 2001). Due to all the health and organisational outcomes, occupational stress is gaining the interest of all parties; employers, employee and the community. Provision of a better workplace environment, especially one that concentrates on stress prevention activities is part and parcel of a workplace health promotion programme.

In a rapid industrialised country like Malaysia, occupational stress has become a major cause of occupational diseases (Leigh & Schnall, 2000). This problem has been recognised as a major cause of workers' health deterioration and reduced organisational productivity. However, a study done by Sandra et al (2001) showed that occupational and public health physicians in Malaysia were still not giving enough priority toward the management of workplace psychosocial problems. At that time, priority was given to chemical poisoning and occupational injuries (Sadhra, Beach, Aw, & Sheikh-Ahmed, 2001). It is shown that there is a significant association between physiological stress and job satisfaction among 80 academicians in a Malaysian private educational institution (Ismail, Yao, & Yunus, 2009). Physiological stress is a form of stress that manifests through physical symptoms such as indigestion or abdominal pain, excessive sweating, breakout of pimples, cold or flu and slower recovery from illness. However, Yao et al (2009) did not find a significant correlation between psychological stress and job dissatisfaction. A contradictory result was found among academicians in a Malaysian public university where psychological stress was strongly associated with job dissatisfaction (Huda et al., 2004b). Psychological stress is usually presented with

symptoms of anxiety and depression, hostility, tension, easily irritated, nervousness and frustration.

### **2.3 Occupational Stress among university staff**

Studies on occupational stress among university staff and its sources were widely discussed in many parts of the world and most of it indicate that university staff experience a high level of stress (Anthony & Richard, 2001; Archibong et al., 2010; Gillespie et al., 2001; Huda et al., 2004a, 2004b; Reda, 1996; Taris, Schreurs, & Silfhout, 2001; Walter et al., 1986; Winefield, 2000; Winefield et al., 2003).

Archibong et al (2010) revealed that the main source of occupational stress among academicians in Nigeria was sourcing funding for career development. Other reported stressors were lack of fund resources for research, poor interpersonal relationship with students and high demand on collation of exam results. Low resource and high job demand were the reported cause among those having job strain and withdrawal behaviours. The structural aspect of a teaching task such as teacher student ratio was reported to contribute strongly towards perceived high job demand (Taris et al., 2001). A qualitative study based on a focus group discussion supported the finding by listing lack or inadequate funding and resource, high job demand, poor management practice, high job insecurity and effort-reward imbalance as five major stressors among university staff (Gillespie et al., 2001). The University's management objective measures such as reduce staffing, cuts in operating grant by the government and the urge to generate self-investment income are highly correlated with poor self-perceived psychological well-being among university staff in Australia (Winefield et al., 2003).

Academicians have two major roles to fulfill namely as researcher and teacher. Their teaching schedule is usually planned earlier and research time will be allocated in between their teaching activities (Taris et al., 2001). Therefore, working after office hours at home has becoming a common activity in order to compensate for the high job demand (Kinman, 2001). Preparing lecture materials and analysing research data was usually done at nighttime. Things become worst among medical lecturers where they are also responsible for clinical work in the university hospital beside teaching and research. Fischer et al (1994) concluded that psychological stress appeared to be features of occupational life for university staff. As a result of that, more than a quarter of them have considered career change seriously, more than half experienced declining morale and their commitment to the university was reduced (Smithers, 2002; Tytherleigh, Webb, Cooper, & Ricketts, 2005).

Gillespie et al (2001) discussed the stress coping strategies among university staff and among the effective measures were improved work environment (high support from co-workers and supervisors, balance between effort and reward, high morale and flexible working condition) and better personal coping strategies (stress relaxation techniques, work and non-work balance, tight role boundaries and lowering standards).

Among Javanese people, life based on religious belief is crucial and becomes a way of experiencing and accepting the course of life. A study on Javanese academicians revealed that religious coping mechanisms moderate the effects of occupational stress due to work psychological risk factors namely job insecurity (Safaria, Othman, & Abdul Wahab, 2010).

## **2.4 Job strain and Work psychological exposure**

### **2.4.1 Job strain**

Karasek (1979) introduced the mostly used model in the research of occupational stress, that is the Job Demand-Control (JDC) model (R. Karasek, 1979). The model was then improvised by Johnson and Hall (1988) by adding the social support elements and it became the Job Demand-Control-Support (JDSC) model. In the last two decades, these two models have been used extensively in explaining the nature of stress at the workplace (Van der Doef & Maes, 1999). It is also becoming a tool for workplace psychological risk assessment.

Based on strain hypothesis, Job Demand-Control model divides jobs into four categories namely high job strain, low job strain, active job and passive job (R. Karasek & Theorell, 1990). Figure 2.3 shows the Job Demand-Control model by Karasek (1979). This strain hypothesis is based on two indicators in the questionnaire which were job demand and job control (decision latitude). High job demand and low job control indicates high job strain. Low job strain happens when a worker is having low job demand and high job control. While active job is when high job demand combines with high job control, passive job is vice versa. High job strain was found to be a risk factor of poor physical and psychological well-being.

Males and females might experience various effects of job strain and life events (Melchior, Krieger, & Kawachi, 2005). A few studies reported that females have a higher health risk as compared to men (Maciejewski, Prigerson, & Mazure, 2001; Vahtera, Kivimäki, & Väänänen, 2006) but others report a greater risk for men (Bruce

& Kim, 1992), while Kendeler et al (2001) found that there was no difference among males and females in the influence of life events toward health risk problems (Kendler, Thornton, & Prescott, 2001). However in most of the studies in job strain and health association, the study population used was mostly male (R. Karasek & Theorell, 1990) and recruited from a specific population (Kivimäki et al., 1997).

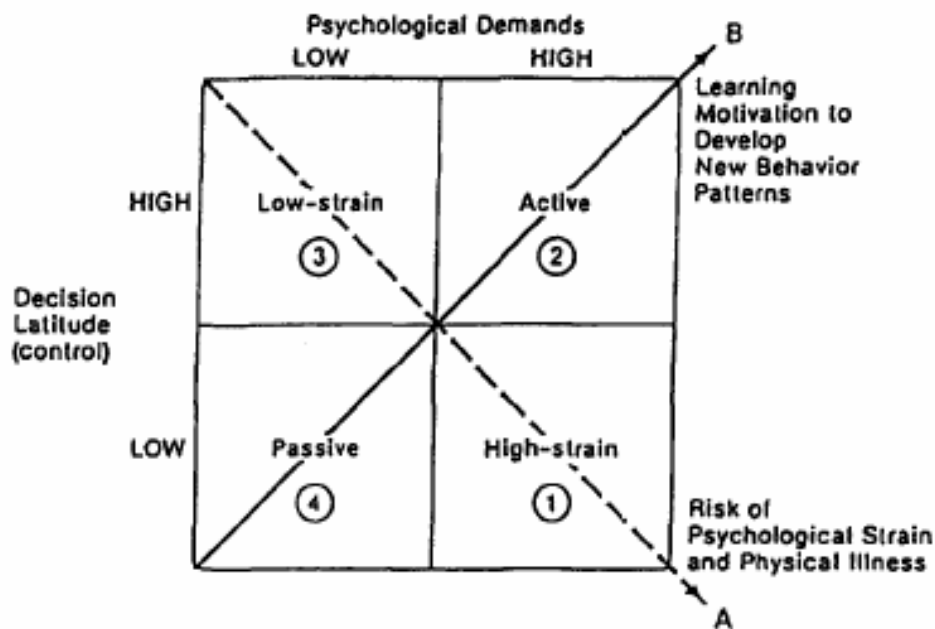


Figure 2.3: The Job Demand-Control Model (Karasek, 1979)

## 2.4.2 Work psychological exposure

### 2.4.2.1 Job control and demand

According to buffer hypothesis, a high control job will reduce the negative impact of job demands on health. The expansion of the model with addition of the social support element which were co-worker and supervisor support, further reduced the effects of high job strain on a person's well-being. This is what is called iso-strain hypothesis. Literature on these hypotheses are still inconsistent. Although most support the strain

hypothesis, less consistent results were found in the buffer and iso-strain hypotheses. Even in some subpopulation, high iso-strain was found to be a risk factor to a person's poor well-being (Van der Doef & Maes, 1999).

Coronary heart disease was found to be associated highly with low decision latitude and high demand. Younger workers were the most affected age group. However, occupational grade and social support were not an effect modifier for this association (Kuper & Marmot, 2003).

#### 2.4.2.2 Job skill discretion and decision making authority

However in Rafferty et al (2001) proposed the use of skill discretion and decision-making authority separately because these two subscales measure different dimensions of job control. He found that emotional burnout was only significantly associated with low skill discretion but not low decision-making authority or both (Rafferty, Friend, & Landsbergis, 2001). It is also suggested that assessment of job strain be done separately due to different dimensions of job demand and control. Rafferty et al (2001) demonstrated that emotional exhaustion was only associated with higher job demand while depersonalisation and low personal accomplishment was only associated with lower job control as compared to both (Rafferty et al., 2001).

#### 2.4.2.3 Supervisor and co-worker support

In a study among automotive assembly workers, Edimansyah et al (2008) found that self-perceived depression, anxiety and stress were associated with high job demand, job insecurity and hazardous work condition. Supervisor support was also found to be

inversely associated with self-perceived depression and stress (B. A. Edimansyah, Rusli, Naing, et al., 2008).

Social support is known as a buffering factor towards poor psychological well-being. Emotional exhaustion and personal accomplishment was found to be associated with co-worker support (Rafferty et al., 2001). While supervisor and co-worker support was reported to reduce job demand, it happens only if the support matched the demand of the job (Van der Doef & Maes, 1999). In combination with high decision latitude, good social support will decrease the incidence of depression and anxiety among workers and vice versa. However, there was no direct relationship between decision latitude and incidence of depression and anxiety (Plaisier et al., 2007). Role of social support and its interaction with job demand and decision latitude was still not well explored (Rafferty et al., 2001; Van der Doef & Maes, 1999).

Support should come from workers in a higher post namely managers, supervisors and senior personnel as they usually have higher decision-making authority and higher skill discretion. This support has the potential to reduce the effects of job strain. Such support can be from multiple methods such as excellent communication linkages from top to bottom and vice versa, proper monitoring of work scope and provision of good informational and appraisal systems (House, 1981). Support in the form of providing room for workers to forward their views and opinions on how to reduce stress also reported an increase in their sense of ownership and thereafter achieved better health and well-being (H. Bosma et al., 1997).



#### 2.4.2.4 Job insecurity

Whitehall II cohort study (Ferrie, Shipley, Stansfeld, & Marmot, 2002) reported an increase in self-reported health and minor psychiatric morbidity among workers who had lost their job security. This adverse effect did not completely reverse even after the removal of the threat but tended to increase further with chronic exposure to the stressor (Ferrie et al., 2002). Plasier et al (2007) surprisingly found that job insecurity was associated with anxiety disorders among women workers and not among men, this was also evident in men who were exposed to a longer period in the workplace due to long working hours as compared to women (Plaisier et al., 2007). In a study among office workers, an association between high job strain and job insecurity was found (Maizura, Retneswari, Moe, Hoe, & Bulgiba, 2010).

Employment status between permanent and contract workers also play an important role in the determination of occupational stress level. The association between low perceived job security with psychological distress was stronger among permanent than contract workers. This indicates that job security is more important for mental health among workers with permanent status (Virtanen, Vahtera, Kivimäki, Pentti, & Ferrie, 2002). Female subsidised (contract) workers have a higher level of psychological distress as compared to permanent workers. However, contract workers have better self-rated health and less chronic disease as compared to permanent workers (Virtanen et al., 2002). In the latest finding, Virtanen et al (2011) indicated in his study that the adverse effects of job insecurity on health do not depend on the type of job contract. Policies to reduce job insecurity should be aimed at both permanent and non-permanent employees. However, job insecurity may be associated with poor health more strongly among permanent compared to contract workers.

### **2.4.3 Effects of work psychological exposure**

Adverse health effects due to work psychological exposure including psychological (B. A. Edimansyah, Rusli, Naing, et al., 2008) and physical illness was discussed extensively. Edimansyah et al (2008) reported an association between job demand and stress. However, job control was found not to be associated with stress (Wallgren & Hanse, 2007), anxiety and depression (B. A. Edimansyah, Rusli, Naing, et al., 2008). The effects of job strain on cardiovascular diseases (CVD) are still widely debated. Although some studies have shown an association between job strain and CVD related mortality (Haan, 1985; R. A. Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981; Schnalt et al., 1990), the studies on the relationship with CVD risk factors are still inconsistent.

Kang et al (2005) reported that high job strain was associated with higher homocystein level (adjusted for age), body mass index and smoking (Kang et al., 2005). However, in a study among 2665 black and white workers, high job strain was found to not be significantly associated with CVD risk factors measured, namely high blood pressure, high cholesterol, smoking and alcohol intake (Greenlund et al., 1995). Job demand was found to be associated with low back pain. Courvoisier et al (2010) explained the relationship between job strain and back pain. The association was even stronger if both physical and psychological job demand were taken in account (Courvoisier et al., 2010). In the latest systematic review on organisational change and stress; they found that in 11 out of 17 studies, an association in observational studies with less provident association in the longitudinal studies (Bamberger et al., 2012).

## **2.5 Sickness absence**

Sickness absence is defined as an absence from work due to or related to illness and/or injury and is accepted by the employer (Mets & La Dou, 1994). Work absenteeism denotes an imbalance in the dynamics between employee, work, organisation and the community (*Work Act 1955 (Act 265) & Regulations*, 2002). According to the Malaysian Employment Act 1955, Section 60F stated that ‘employees are eligible for sick leave only after being examined and certified by a Registered Medical Officer or Dental Officer’ (Caroline, Jean-Pierre, & Hans, 2006). Sick leaves are important to provide sufficient time for the sick/injured employee to recuperate before he can return to work. However, more costly than absenteeism is presenteeism; where a person is present at work even though disabled by psychological or physical illness (Caroline et al., 2006). Whatever it is, the employer is responsible in ensuring the health and safety of their employee. Lost productivity due to presenteeism is much greater than that lost to absenteeism.

Human resource, financial status and control measures are crucial and need to be planned effectively by taking care of all the risk factors of sickness absence in the organisation. Studies show that there are three main level of risk factors namely the macro level, the organisational level and the individual level. Macro level risk factors include climate, epidemics, health services, social insurance scheme, age of retirement, sick leave certification, tax, economic status, lifestyle, alternative employment and unemployment (Allebeck & Mastekaasa, 2004). At the organisational level, the risk factors are industrial type, working environment, work demand, organisational size, work force characteristics, occupational health services, industrial relationship, quality of monitoring, human resource policy and worker turnover rate (Mets & La Dou, 1994).

Socio-demographic and health related behavior of an individual plays an important role in indicating the risk of sickness absence. The risk factors for the individual level are age, gender, work status, job satisfaction, duration of services, personality, family responsibility, social support, recreational activities, alcohol intake (Spak, Hensing, & Allebeck, 1998), smoking status, individual health status and life crises (Mets & La Dou, 1994).

Alexander (1998) represents risk factors of sickness absence through a different approach by classifying them into national level (state of the market), workplace level (psychosocial work characteristic, chemical environment), communal level (socio-demographic condition) and individual level (age, education, marital status, illness behavior) (Alexanderson, 1998). Chronic disease was found to be the biggest cause of sickness absence (Andrea et al., 2003), frequent clinic visits and higher medical cost claims.

For the recurrent absentees, proper history taking need to be done by medical officers to reveal the underlying cause and uncover any latent personal problems or problems at work. A medical examination will establish or exclude any significant medical problems. Sickness absence can be the result of various medical causes, such as upper respiratory tract infection, acute gastroenteritis, musculo-skeletal pain and psychological complaints. Sickness absences with cause-specific diagnoses were associated with physical and psychological work exposure.

Consequently, socioeconomic inequalities in health are considered to involve both musculoskeletal and psychological disorders. In a study done among employees in a gas

and electricity company, physical work condition was found to account for 13% (women) and 42% (men) of absence due to musculo-skeletal reasons (Melchior et al., 2005). In another study using a video recording as measurement for physical workload found that long absences were associated with work that needs trunk flexion, trunk rotation and lifting (Hoogerndorn, Bongers, & de Vet, 2002). Physical factors such as heavy-duty work (Jenkins, 1994), repetitive work and heavy lifting (Voss, Floderus, & Diderichsen, 2001) have been found to correlate with sickness absence. The current causal concept of musculoskeletal disorders is multifactorial; workplace or leisure time physical and psychosocial exposure, organisational factors at work, constitution, personality traits and coping strategies, and socioeconomic factors (Woods & Buckle, 2002).

Mental disorders were found to have a strong relationship with sickness absence especially in men (Jenkins, 1994). Minor psychiatric ailments among males were reported to have more effect on sickness absence. However for females, there was less adverse effect on sickness absence due to early detection and treatment of the mental health problems before it became bad and caused an impact. Women were also more likely to get professional advice and treatment as compared to men (Bijl, Ravelli, & Zessen van, 1998). Early detection and intervention by a professional will help to prevent sickness absence.

Coping strategies towards psychological problems was also an important protective factor for sickness absence. Increased sickness absence was found to be associated with low coping skills (Peter & Siegrist, 1997). Peter and Siegrist (1997) reported that employees with inappropriate rewards at the workplace and passive coping strategies

were more prone to sickness absence. Coping and control beliefs were associated with parental education level where such skills were taught and shaped informally at home (H. Bosma, 2006).

In a cluster randomised controlled trial, an Occupational physician delivers an intervention of three stages of stress inoculation training to adjustment disorder patients via five sessions of individual counselling within a six-week period (J.J.L. van der Klink, Blonk, Schene, & van Dijk, 2003). Van der Klink et al (2003) found that the above intervention was successful in reducing sickness absence duration mainly in long-term absenteeism among adjustment disorder patients.

## **2.6 Measurement of psychological symptoms**

Work stress can be observed in various ways. First, it can be defined as a health outcome due to exposure to hazards at workplace. Hazards for occupational stress can be from physical (e.g. noise, heat), ergonomical (e.g. working with computer), chemical (e.g. fear of the effects of hazardous chemicals) and psychosocial (e.g. long working hours, ambiguous duty). Measurement should consider dose of exposure and the relationship between exposure and outcome.

Second, work stress in the physiological aspect is demonstrated as a body response towards a threatening work environment where the job demand exceeds capabilities. This can be measured directly via the magnitude of the physiological responses. The responses would be mainly on their hormonal changes (serum cortisol and adrenaline). Laube et al (2002) in her study among women with a history of allergic-asthma reported

that women with higher level of stress and lower coping capability had significantly lower level of morning serum cortisol (Laube, Curbow, Costello, & Fitzgerald, 2002). The relationship between stress and serum cortisol will be discussed further in section 2.6.2.

Third, the effort and reward model by Siegrist (1996) discussing the imbalance between these two indicators and their interaction with physical and psychological well-being. Finally, cognitive behaviour and emotional response that one has due to their exposure to work environment, have been reported in transitional theories by R. Lazarus and Folkman (1984).

### **2.6.1 Self-perceived depression, anxiety and stress measurement**

In this present study, perceptions of depression, anxiety and stress through symptomatic questions were primarily used. We measure self-perceived depression, anxiety and stress through the Depression, Anxiety and Stress Scale (DASS). DASS is a set of questions based on physical and psychological response in terms of symptoms that the workers experienced in the past one week. The use of DASS psychometric properties is proper in an occupational health care setting. It can be helpful in screening for depression, anxiety and stress among workers especially those with mental health problems (Nieuwenhuijsen, de Boer, Verbeek, Blonk, & van Dijk, 2003). DASS consists of 42 questions relevant to depression, anxiety and stress symptoms and thus is called DASS-42 (S. H. Lovibond & Lovibond, 1995).

A simplified version, DASS-21, was created and several published articles show that DASS-21 has the same factor structure and will generate the same outcome as DASS-42

(Antony, Bieling, Cox, Enns, & Swinson, 1998). DASS-42 was recommended for use in clinical settings while DASS-21 was favoured for research purposes as it is easier to answer and saves time (Antony et al., 1998; Szabó, 2010). This score defined anxiety in questions related to autonomic symptoms and made it distinctive with emotional symptoms for depression. Anhedonia was emphasized in defining depression and equal priorities were given to hopelessness and devaluation of life. Stress scale is a distinct coherent symptom as its longitudinal stability supports the existence (P. F. Lovibond, 1998).

Symptoms measured in DASS were inter-correlated because of the common trigger factors but not common symptoms. As compared to DSM-IV diagnostic classification, DASS Depression scales and Mood Disorder in DSM-IV were fairly close to each other except for some non-specific symptoms of depression such as appetite change and guilt. DASS Anxiety scales are mostly similar with other Anxiety Disorder besides Generalised Anxiety Disorder (GAD) while DASS Stress scales are pretty close with diagnosis of GAD in DSM-IV.

The tool of measurement for depression and anxiety symptoms was developed by Lovibond and Lovibond (1995) with the maintenance of its distinct validity between these two disorders. The third construct, which is stress, was then identified using empirically-driven iterative process. Each of the construct consists of 14 items for DASS-42 (7 items each for DASS-21) and the answers are based on the Likert scale of zero to four. Zero indicates “did not apply to me at all” while four indicates “Applied to me very much or most of the time”. The total for each scale will then be added and classified accordingly into their severity group. Figure 2.4 shows the classification of



DASS-21 screening score for all the scales. However, this classification is based on a dimensional rather than a categorical conception of psychological disorder (S. H. Lovibond & Lovibond, 1995).

Those with a high score on the depression scale can be assumed to have the following characteristics – self-disparaging, lack of spirit, always devalue their own life, pessimistic about their future life, lack of enjoyment or satisfaction, difficult to get interested or involved, slow and lack of own initiative. Characteristics of those with a high score on the anxiety scale are apprehensive, easily panic, shaky, aware of their physical changes of mouth dryness, shortness of breath, palpitations and sweaty palms and always worry about their performance and loss of control. Stress scale high scorer will usually represent themselves as over-aroused, tensed, difficult to relax, sensitive easily get agitated, irritable, startled, nervy, jumpy, fidgety and intolerant of any interruption or delay of their task (S. H. Lovibond & Lovibond, 1995).

Screening Score			
	Stress	Anxiety	Depression
Normal	0-7	0-4	0-5
Mild	8-9	5-6	6-7
Moderate	10-13	7-8	8-10
Severe	14-17	9-10	11-14
Extremely Severe	18+	11+	15+

Figure 2.4 Categories of DASS screening score for self-perceived depression, anxiety and stress scales.

DASS has been studied across multiple cultures and places. It is relatively culture-neutral as it does not mention any specific cultural or religion aspect. DASS was translated into many languages around the world. As for Malaysia, the translation by Ramli (2007) has been used widely as it is freely available on the DASS official website (Ramli, 2007). A few studies have shown that psychometric properties of the Malay version of DASS-21 is reliable and is a valid screening tool for the assessment of self-perceived depression, anxiety and stress among the Malaysian population (A. Edimansyah, Rusli, & Lin, 2010; Ramli, Mohd Ariff, & Zaini, 2007; Ramli, Salmiah, & Nurul Ain, 2009).

Reliability for internal consistency for self-perceived depression, anxiety and stress revealed Cronbach's alpha value of 0.75, 0.74 and 0.79 respectively among diabetic patients (Ramli et al., 2009); 0.81, 0.85 and 0.85 respectively among automobile assembly workers (A. Edimansyah et al., 2010); and 0.84, 0.74 and 0.79 respectively among patients in out-patient clinics (Ramli et al., 2007). As for construct validity, the Malay version of DASS-21 has a good factor loading value for most of the items ranging from 0.31 to 0.75 among diabetic patients, 0.48 to 0.80 among automobile assembly workers and 0.39 to 0.73 among patients in out-patient clinics.

### **2.6.2 Stress and cortisol level**

In a stressful condition, the brain will respond and stimulate the endocrine glands in whole body to release hormones. These hormones include adrenaline and cortisol. Adrenaline will cause excitement while cortisol will modulate various energy resources in our body. Cortisol (glucocorticoid) is secreted by the adrenal cortex (thus *corticoid*) and cause an increase in blood sugar level (thus *gluco*). The body's energy reserves will

rapidly mobilise in order to overcome the stressor. At this time, levels of adrenaline and cortisol will increase. In acute stress, energy stores are mobilised to either fight off or run away (flight response) from the stressor.

However in certain circumstances, we are not able to eliminate the stressor even with the extra energy provided. The acute stressor will become chronic. Under these circumstances, when stress is repeated and constant, cortisol levels will persistently increase and is maintained at a high level. This condition is often referred to as the overload stage, when our body systems start to break down and associated problems emerge (Talbot, 2007). In certain conditions, when clinical signs and symptoms of stress are still not clear, salivary cortisol can be used as biological markers. This was proven among subclinical post-traumatic stress patients where their stress level was associated with salivary cortisol level (Aardal-Eriksson, Eriksson, & Thorell, 2001). Normal cortisol metabolism follows a circadian rhythm with the highest levels usually observed in the early morning from 6am to 9am and the lowest levels will be at midnight around 12 midnight until 2am. The normal range of serum cortisol levels is wide, from 150 to 700nmol/l in the morning around 6am to 9am (Sanksen, 2005). Midnight serum cortisol level will be from 80nmol/l to 350nmol/l. These levels can vary in response to stress, illness and even meals. Time of blood collection will also affect cortisol level.

A concern was raised on measurement of stress level via plasma and salivary cortisol. Issues concerning the relationship between cortisol and stress are worth further study. There was an inconsistent finding reported on the relationship. Several studies had reported a relationship between increased serum and salivary cortisol levels with

increased distress levels. However, a few other studies failed to reproduce the same result. Masilamani et al (2011) reported that log salivary cortisol was not associated with stressful conditions and socio demographic background among teachers. However, they found that salivary IgA was inversely correlated with chronic stress participants with a high risk stressful condition namely teaching handicapped children and no supervisor support. Methodological and sample size variability might be the factors to this inconsistency. These include the biological difference between and within individuals, effects of time of day, medication, food intake and differences in statistical analytical methods used. These factors increase the likelihood variance and inaccuracy in determining the relationship between serum cortisol and emotional distress.

A study has shown that job strain and anger can predict high levels of morning cortisol (Steptoe. A, Cropley. M, Griffith. J, & Kirschbaum. C, 2000). Diurnal rhythm of serum cortisol also has been describe in stress individu (Cohen S et al., 2006; Sjögren E, Leanderson P, & Kristenson M, 2006). These changes in diurnal rhythm also have been associated with coronary artery disease (Matthews K, Schwartz J, Cohen S, & Seeman T, 2006). The determination of serum or salivary cortisol has become the method of choice in basic research and clinical environments.

A few studies have documented that repetitive exposure to a stressful condition is associated with an increase in serum cortisol level (Evans, Lercher, Meis, Ising, & Kofler, 2001; Schulz, Kirschbaum, Prussner, & Hellhammer, 1998). However, other studies among asthmatic patients found negative correlation between serum cortisol and stress level (Laube et al., 2002). This inconsistent result might be due to the nature of systemic cortisol level and methods of measurement. Cortisol is commonly used as

biomarker for stress especially in acute conditions. Cortisol measurement will provide a concentration only at one particular time. Measurement for acute stress might be accurate, but still limited to physiological daily rhythmic fluctuations. This makes the measurement of accurate daily systemic cortisol exposure difficult. In a normal person, plasma cortisol will peak early morning and gradually decrease throughout the day. Therefore, a single measurement cannot reflect the actual exposure to daily systemic cortisol. Multiple measurements might be better but this is practically difficult and participants might not comply with the sampling schedule even though we only measure through saliva (Yehuda, Halligan, Golier, Grossman, & Bierer, 2004).

In addition, measurement of serum cortisol will be affected by the level of cortisol-binding globulin. Measurement through serum will include free and protein-bound cortisol. Serum cortisol might falsely increase due to cortisol-binding globulin. This condition is especially important among pregnant mothers and women who take contraceptive pills. Increase in cortisol-binding globulin is not due to stress or concentration of free cortisol.

In addition, venipuncture could also increase the participants stress level at that particular time (Vining, McGinley, Maksvytis, & Ho, 1983). Even though measured through saliva or urine, fluctuation issue is still a concern. Introduction to the use of 24-hour urine collection might provide an integral measurement of daily free cortisol (Burch, 1982), but the collection is labor intensive for participants.

### **2.6.3 Stress and coping measurement**

Dealing with coping measurement is a complex area. The most frequently used measurement for this is a self-reported set of questionnaires namely Stress and Coping Inventory (SCI). Stress and coping measurement includes various types of changes in life events, the self-perceived impact of those challenges on an individual, and assessment on the coping strategies used to overcome the life-changing events. Besides the questionnaire, this information can also be retrieved through an interview or personal logs.

SCI is a comprehensive set of questionnaires involving four types of life stress events and four types of coping mechanism (R.H. Rahe, 1995; R.H. Rahe, Veach, Tolles, & Murakami, 2000). Rahe et al (R.H. Rahe et al., 2000) has demonstrated that SCI is useful in health risk assessment for morbidity. The scores were based on two sections of stress level and coping capability. If the person had a higher score in stress level as compared to their coping capabilities, they are proven to be at a higher risk for illnesses as compared to those with balanced stress and coping score levels. This is in contrast to those with higher coping capability scores than stress level, they have a lower risk of developing stress-related illnesses.

## **2.7 Stress and Medical problems**

### **2.7.1 Stress and metabolic disorder**

One of the consequences of elevated stress levels is metabolic disorder. Metabolic effects of stress-induced cortisol were insulin resistance and elevated blood sugar levels. In a stressful condition, the body needs more energy and therefore cells will stop

responding to insulin. They will switch from anabolic mode to catabolic mode so that more glucose is produced to adapt to the stressful condition. If this stimulation occurs on a regular basis as in chronic stress, this can lead to insulin resistance and predispose a person to the development of diabetes mellitus (Talbot, 2007).

The association between stress and diabetes mellitus was described in Bjorntorp hypothesis (Bjorntorp & Rosmond, 2000). The Bjorntorp hypothesis explained there will be an excessive hypothalamo-pituitary adrenal (HPA) axis activity and sympathetic drive in a stressful event. The effects from these changes were increased abdominal obesity, free fatty acid concentration, increased heart rate, cardiac output and renin secretion. These will act concurrently with increased cortisol and androgen overload. Bjorntorp suggested that the link between stress and diabetes were due to the accumulation of fat at the central body and this central adiposity was the cause of diabetes mellitus. Excessive hypothalamic arousal is the main factor of metabolic syndrome, insulin resistance and Type 2 Diabetes. He also suggests that the original causes were poor coping strategies and 'environmental stress' (R. Lazarus & Folkman, 1984).

Increased glucose level in workers with diabetes will make them more susceptible to diabetic complication such as cataract, renal failure and neuropathy. The fight and flight response to stress was moderated by releasing hormones due to stress. These hormones will transport glucose into blood vessels and causes an increase in blood glucose. These will be used as additional energy for the response.

Other than stress reduction at the workplace, good management of stress will also optimise glucose control in workers with type 2 diabetes. Patients with type 2 diabetes who practice stress management techniques can significantly reduce their average blood glucose levels. This simple and cost-effective treatment manages to contribute a meaningful therapeutic effect on controlling blood sugar. However, the strength and direction of the relationship between stress and blood glucose control varies considerably between individuals (Kramer, Ledolter, Manos, & Bayless, 2000).

As for cholesterol levels, better stress coping strategy and good social support was found to have an association with higher HDL and lower total cholesterol level (Shirom, Westman, Shamai, & Carel, 1997; Thomas, Goodwin, & Goodwin, 1985; Van Doornen, 1982). Emotional burnout and work overload were found to be positively correlated with higher serum lipid (Shirom et al., 1997). Thus, measurement of cholesterol level is an important indicator for a stress management programme.

### **2.7.2 Stress and hypertension**

Stress is related to hypertension through repeated elevation of blood pressure. It will stimulate the nervous system to produce large amounts of vasoconstrictions' hormones that increase blood pressure. Stress can affect blood pressure through various factors such as job strain, social environment and emotional distress (Kulkarni, O'Farrell, Erasi, & Kochar, 1998). Proper stress management, weight loss, sodium reduction, increase physical activity and limited alcohol intake are established recommendations to reduce blood pressure (Appel, Champagne, Harsha, Cooper, & Obarzenek, 2003). Psychological stress has been implicated in the disproportionately higher rates of hypertension.



Schneider et al (2005), in his study among African Americans, found that selected stress reduction approaches were useful as an adjunct in the long-term treatment of hypertension. The group with meditation intervention showed better reduction in systolic and diastolic blood pressure of -3.1/-5.7 mmHg compared to the Progressive Muscular Relaxation (PMR) intervention group or the Health Education group (-0.5/-2.9 mmHg). Reid et al (2000) suggested in their study that a proportion of motivated patients willing to trial a lifestyle approach can cease drug therapy and be adequately maintained by the prescription of lifestyle advice for at least a 9-month period. However, according to Svetkey et al (2005), blood pressure changes were consistently greater in hypertensive than in non-hypertensive. He also concluded that diverse groups of people can adopt multiple lifestyle changes including stress management programmes that can lead to improved blood pressure control and reduced cardiovascular risk.

The workplace is one of the main causes of high blood pressure. Workers who work more than 50 hours a week were reported to have an increased rate of hypertension. High job demand and low decision making authority was identified as risk factors for this problem at the workplace. An increase in economic power will eventually increase the rate of cardiovascular disease.

In this current study, besides health education; progressive muscle relaxation, musical, meditation and imaginary therapy were taught to all participants with diverse demographic backgrounds.

## **2.8 Stress Management Programmes at the workplace**

A stress management programme is defined as “organisation, which focuses on reducing the presence of work-related stressors or on assisting individuals to minimize the negative outcomes of exposure to these stressors” (Ivancevich, Matteson, Freedman, & Phillips, 1990). In the 1930s and 1940s, the mental hygiene movement was introduced in the workplace where happy workers will be productive workers and vice versa (Jenkins, 1994). The needs of mental health assistance programmes have increased and thirty per cent of workers will suffer from mental health problems each year. While there are many different causes of mental illness, a positive working environment and appropriate support at work has significant impact on stress related sickness absence and long-term mental health outcomes. The workplace is considered an important setting for health promotion activity because the structures already exist within the workplace for occupational health and safety requirements. These can be easily used to deliver health promotion activities.

The psychosocial structure of workplaces and work processes can impact mental health. The workplace also offers enormous potential to reach large numbers of people with information and assistance to improve their health and well-being. Some of these people are in groups that are otherwise hard to reach. It is in the common interest of employers and employees to promote health at work. Forward thinking organisations recognise that the management of their human capital is as important as the management of their financial and other resources. Employee health and well-being and fitness for work are closely linked and are key factors in any organisations’ drive towards greater effectiveness, competitiveness and productivity (Detels et al., 2002).

Prevention of stress can be divided into three main classical group of prevention strategies which are; primary prevention (e.g. stressor reduction), secondary prevention (e.g. stress management, coping strategies and relaxation techniques) and tertiary prevention (e.g. Employee assistance programme). Primary prevention is targeted on elimination and modification of the workplace stressors. It will reduce the negative impact on the workers concerned. The intervention will try to adapt the working environment to fit the individual. Redesigning tasks, redesigning working environment, establish work roles and goals, appropriate reward systems and provide social support were among reported primary prevention strategies (Elkin & Rosch, 1990).

Secondary prevention in stress reduction is basically involved in screening and management of stress among employees. The activities involved usually relate to education and practical knowledge on how stress manifests and how to cope with stress. A few stress relaxation techniques will be introduced for their daily practice. Skills involving work and lifestyle modifications (time management, self-assertive techniques and financial management) will be taught. However, this secondary prevention strategy only concerns individual adaption toward a stressful event. Assuming that the organisation does not change and stress is permanent, this intervention will develop or increase resistance to that stress. It was sometimes called 'the band-aid' or inoculation approach (Cooper & Cartwright, 1997).

Tertiary prevention offers mainly rehabilitation and supportive treatment during recovery periods. At this level, interventions commonly involve individual counselling and support services. The Employee Assistance Programme (EAP) is one of the comprehensive programmes in the provision of such services. An EAP counsellor is

familiar with the organisation work process and they are designated to handle counselling and any psychological aspects at the workplace. Psychological risk assessment will be done so that the main stressor at that particular workplace can be detected. Counselling and advice given will suit the working environment and it is most of the time practicable (Cooper & Cartwright, 1997). Briner (1997) then proposed that any stress management programme needs an evidence-based approach whereby risk assessment need to be done first in order to make decisions on the type of interventions.

The roles of an individual and organisational-approach stress management programme has been discussed widely and it is still debatable. Individual-focused intervention is usually targeted to improve worker's health and their personal emotional problems. Most of the individual-orientated programmes involve sessions of promoting a healthy lifestyle such stop smoking and increase physical activities. Very few or nearly no consideration is given to 1) how the workplace can contribute to a healthy lifestyle and 2) the direct cause of workplace hazards that contribute to lifestyle diseases (Noblet & Lamontagne, 2006). A few criticisms were aimed towards individual-based intervention. First, the focus of the intervention has ignored the adverse effect of workplace environment. The Safety and Health for Work report from a European agency found that most of the stress symptoms experienced by workers were primarily due to workplace problems rather than coping disabilities. Second, the effort to intervene the stress experiences without looking into the source of it will breach the rules and regulation for occupational safety and health in most countries including Malaysia. All the hazards identified as causing the stressful event need to be controlled. Third, the criticism was concerned about the benefit of this individual-centred

intervention. The outcome usually even though positive, tends to be short-term and has very limited benefit in the organisational aspect.

Despite all the criticisms, some of the individual-approach stress management programmes has shown its effectiveness. Carlson and Hoyle (1993) have found that an Abbreviated Progressive Relaxation Training (APRT) was effective in reducing self-perceived stress and the physiological effects of stress such as cortisol level and heart rate. There was an increasing need in organising mental health services and outcomes can be measured in the short-term or long-term.

Comprehensive-approach of stress management intervention combines the organisational and individual-approach techniques. At the individual level, the workers are equipped with knowledge on relaxation techniques, coping strategies, good time management and financial management. While at the organisational level, problems related to work psychological exposure and characteristics such as role ambiguity, skill discretion, decision making authority and sense of ownership were taken into account. The comprehensive-approach programme was found to deliver better long-term outcomes. It exhibits outcomes that are usually relevant to individual (reduced psychological symptoms and blood pressure) and organisational (reduced sickness absence and increase work performance) problems. In health promotion principles, this approach was called the setting approach (Noblet & Lamontagne, 2006).

In this present study, individual-approach stress management programmes was conducted under the Employee Assistance Programme. Psychological risk assessment was done based on the work psychological exposure and intervention targeted on

individual counselling based on their psychological problems at workplace. However, the outcome measures involve both individual (e.g. self-perceived depression, anxiety and stress, blood pressure, fasting blood sugar) and organisational (sickness absence) concern.

## **2.9 Stress Relaxation Therapy**

### **2.9.1 Deep Breathing Exercise**

With its focus on full, cleansing breaths, deep breathing is a simple, yet powerful, relaxation technique for a stressful person. It's easy to learn, can be practiced almost anywhere, and provides a quick way to get their stress levels in check. Deep breathing is the cornerstone of many other relaxation practices, too, and can be combined with other relaxing elements such as imaginary and music. It needs a few minutes of their time and a place to stretch out. The key to deep breathing is to breathe deeply from the abdomen, getting as much fresh air as possible into the lungs. When they take deep breaths from the abdomen, rather than shallow breaths from their upper chest, they will inhale more oxygen. The more oxygen they get, the less tense, short of breath, and anxious they feel. The instructions for the deep breathing exercise are described in Appendix A.

### **2.9.2 Progressive Muscle Relaxation**

Progressive muscle relaxation was originally developed by Jacobson (1938). This is one of the most easily learned techniques to achieve a deep state of relaxation. Dr Jacobson revealed that muscle relaxation can be achieved by tensing it first for few seconds and

then releasing it. Repeating this process with all your muscles will produce a deep state of relaxation.

Originally, Dr Jacobson proposed a full set of 200 muscle relaxation exercises involving multiple groups of muscles. However, this training programme will take a long time to be complete. A more recent innovation to the concept was introduced by simplifying it into 15-20 basic exercises. With regular application, this simplified version was found to be just as effective as the original more elaborate system.

Progressive muscle relaxation is especially helpful for people whose anxiety is strongly associated with muscle tension. This is what often lead us to say that we are "*uptight*" or "*tense*". We may experience chronic tightness in our shoulders and neck, which can be effectively relieved by practicing progressive muscle relaxation. Other symptoms that respond well to progressive muscle relaxation include tension headaches, backaches, tightness in the jaw, tightness around the eyes, muscle spasms, high blood pressure, and insomnia. If we are troubled by racing thoughts, we may find that systematically relaxing our muscles tends to help slow down our mind. Dr. Jacobson himself once said, "An anxious mind cannot exist in a relaxed body.'

Long-term effects of regular practice of progressive muscle relaxation include:

- A decrease in generalised anxiety.
- A decrease in anticipatory anxiety related to phobias.
- Reduction in the frequency and duration of panic attacks.
- Improved ability to face phobic situations through graded exposure.
- Improved concentration.

- An increased sense of control over moods.
- Increased self-esteem.
- Increased spontaneity and creativity.

These long-term benefits are sometimes called *generalisation effects*: the relaxation experienced during daily sessions tends, after a month or two, to *generalise* through the rest of the day. The *regular* practice of progressive muscle relaxation can go a long way toward helping us better manage our anxiety, face our fears, overcome panic, and feel better all around. There are no contraindications for progressive muscle relaxation unless the muscle groups to be tensed and relaxed have been injured. This relaxation process involves sixteen different muscle groups of the body. The idea is to tense each muscle group hard (not so hard that you strain, however) for about 10 seconds, and then to let go of it suddenly. We then give ourselves 15-20 seconds to relax, noticing how the muscle group feels when relaxed in contrast to how it felt when tensed, before going on to the next group of muscles. We might also say to ourselves "I am relaxing," "Letting go," "Let the tension flow away," or any other relaxing phrase during each relaxation period between successive muscle groups. Throughout the exercise, maintain our focus on our muscles. When our attention wanders, bring it back to the particular muscle group we're working on.

A person with stress and anxiety symptoms can practice this exercise either lying down or sitting up. The entire progressive muscle relaxation sequence will take 20 to 30 minutes the first time. With practice they may decrease the time needed to 15-20 minutes. They might want to record the above exercises on an audio cassette to expedite their early practice sessions. Or we may wish to obtain a professionally made tape of the progressive muscle-relaxation exercise. Some people prefer to use a tape, while others



have the exercises so well learned after a few weeks of practice that they prefer doing them from memory. The guidelines in Appendix B describe progressive muscle relaxation instructions in detail.

### **2.9.3 Imagery and Musical Therapy**

Imagery is a variation on traditional meditation that requires us to employ not only our visual sense, but also our sense of taste, touch, smell, and sound. When used as a relaxation technique, visualisation involves imagining a scene in which you feel at peace, free to let go of all tension and anxiety. Choose whatever setting is most calming to us, whether it's a tropical beach, a favourite childhood spot, or a quiet wooded glen. We can do this visualisation exercise on our own in silence, while listening to soothing music, or with a therapist (or an audio recording of a therapist) guiding us through the imagery. In order to employ our sense of hearing, we can use a sound machine or download sounds that match our chosen setting; for example, the sound of ocean waves if you've chosen a beach.

Research has demonstrated that a variety of music therapy relaxation and stress management approaches are effective for people requiring rehabilitation. Benefits include decreased heart and respiratory rate, blood pressure, anxiety, agitation and depression, along with general stress reduction, improved coping skills and better psychosocial adjustment. Music has also shown to be an effective sedative component in pre-operative and operative procedures.

## **2.10 Employee Assistance Programme**

### **2.10.1 History of the Employee Assistance Programme**

The Employee Assistance Programme (EAP) was introduced in the early 1960s in the United States. In 2003, nearly half of the US workforce were enrolled in EAP and most of them were from companies with more than 50 employees. This EAP provision accounts for about 62.8 million people in the United States of America (Masi, 2004). For fifty years of its existence, EAP has developed to a significant level. Earlier on, EAP was focused mainly on the identification, intervention and assistance of alcohol problems among workers. The most effective way of managing alcoholic workers was by introducing early intervention through observing, documenting and confronting workers on the basis of their job performance. This job performance and early intervention regime was becoming more popular for employers and unions as it is an acceptable and neutral method of identifying various personal problems at the workplace.

EAP has experienced an evolutionary phase where it does not only concentrate on alcohol and drug problems. EAP is getting more popular now for managing psychosocial problems such as emotional issues, depression, stress, relationships, marital difficulties, compulsive gambling, career issues, financial and legal concerns, child and elder care, health and wellness, critical incidents, violence, and many other contemporary problems.

There exist many definitions of EAP models but all involve a common group of core components. The common components include the provision of confidential

assessment, counselling and therapeutic services for employees that are experiencing a wide range of psychological related problems (M. F. Dollard, Tuckey, & Dormann, 2012; Law, Dollard, Tuckey, & Dormann, 2011).

EAP has been granted an important role in the workplace. Worldwide, it is rapidly expanding and acceptance among employers is increasing. Assessment of any particular programme is very crucial in order to measure and prove their success. However for EAP, there is still no universal definition for measuring effectiveness of any EAP services. Some are looking into EAP utilisation and the other looks into organisational benefit.

EAP has been recognised as one of the main occupational stress interventions in Western countries. With an estimated growth rate of 40% since 1995, it suggests that EAP has probably covered over 1.6 million employees in United Kingdom (Gunbayi, 2009). Because of this tremendous growth, assessment on the effectiveness and their role in the management of stress need to be reviewed.

The main factors that contributed to the growth of this programme are the corporate demands to increase work performance by increasing employee support. The adverse results of increasing demand were work-related stress and poor physical health. Issues like incidence of lateness, absenteeism, accidents and injuries will increase. Therefore, such programmes, like the Employee Assistance Programme, is important to overcome these problems (Berridge, Cooper, & Highley-Marchington, 1997). Other factors were the threat of employee litigation for causing work-related stress, a greater willingness to

admit mental health problems amongst the population and the emphasis of psychiatric services towards treating mainly and enduring mentally ill patients.

Employers are interested to know about the utilisation of the programme which they are paying for, but what is most important is the effect of the utilisation of services, whether there is an improvement in individual mental or physical health. Even at present, there is no standard definition of EAP utilisation. Usually external EAP vendors are selected to evaluate internal EAP effectiveness on the basis of programme utilisation. However, there is no standard definition on how this external assessor works.

#### **2.10.2 Employee Assistance Programme in Malaysia**

In Malaysia, EAP is still in the development stage where many companies are still not willing to invest in the programme as compared to the US and European countries (Low, 2010). EAP services in Malaysia are usually provided by private local and regional companies. Most of the EAP clients are multinational companies where provision of such services is part of their work culture unlike local companies, most of them employ or are attached with a professional counselor to establish their so-called EAP. Even if it is more towards a normal mental health programme, some of the larger companies even hire an occupational health physician or occupational health doctor to run this programme. The unavailability of local research regarding EAP benefit is a main concern on why EAP services acceptance among employers were still relatively low. The stigma towards mental health problems in a developing country like Malaysia is another major task faced by EAP providers (Low, 2010).

EAP is a worksite-based programme designed to assist work organisations in tackling productivity issues and workers. Personal concern including health, marital, family, financial, alcohol, drug, legal, emotional, stress, or other personal issues that may affect job productivity and performance will be identified and resolved.

Based on one of the well-known EAP provider in Malaysia, EAP core business involves seven main functions (Dickman, 2009). The combination of these functions will enable the EAP provider to supply a comprehensive approach in addressing work productivity issues and workers' personal concerns.

The main functions of the EAP are:

- i) To assist managers, supervisors and union leaders in managing workers with disciplinary problems, enabling a better work environment and improving their job performance. Assistance will involve consultation and training to the leaders in the management of problematic workers especially those with emotional problems. Service provider will reach out and educate employees and their family members on the availability of EAP services;
- ii) Confidential problem identification and assessment services for workers with any personal concerns that might affect their job performance.
- iii) Identify problems that affect the job performance by using constructive confrontation, motivation and short-term intervention with workers;
- iv) Workers that need medical attention will be referred to a psychiatrist for diagnosis, treatment, assistance, monitoring and follow-up services;

- v) Consultation with work organisation in terms of establishing and maintaining effective relations with treatment and other service providers, and in managing provider contracts;
- vi) Consultation with work organisation to encourage availability of and employee access to health benefits covering medical and behavioural problems, including, but not limited to, alcoholism, drug abuse, and mental and emotional disorders; and
- vii) Identification of the effects of EAP services on the work organisation and individual job performance.

EAP is not only a counseling service as perceived by many. EAP understands the linkage of emotional and behavioral issues on performance, organisations and leaders and its strength is in providing strategic consultation, problem identification and solution management to corporations regarding complex employee relation issues, organisation development, transitions, health and wellness. EAP makes good business sense because in today's market, employees are the most important asset in an organisation. Best in class employees are resilient, have a strong sense of self-worth, emotionally and physically healthy and have a balanced personal and work life.

EAP for workplace stress management programmes vary widely from primary to tertiary prevention. Assessment on workplace psychological risk factors and training on risk reduction is the main objective in primary prevention. In secondary prevention, the effort was targeted on increasing workers' coping skills strategies in order to handle their workplace demands. Tertiary prevention strategies were to reduce the effect of occupational stress in terms of personal and organisational effects. In this study, a multiple level settings approach was used because every level has its own advantages.

Worldwide studies on EAP for stress intervention at the workplace were increasing remarkably in the last decade (Attridge, 2010; Hughes, 2006; Liu, 2011). Increasing medical cost claims, insurance cost and new staff training cost has become an important reason for the development of stress management programme analysis at the workplace. Earlier research has shown that this programme has the capability to reduce these costs (Mumford, Schlesinger, Glass, Patrick, & Cuerdon, 1984). Subjects from EAP stress intervention groups have shown a more rapid reduction in negative response to stress than did subjects in other groups.

Educational materials used in EAP for stress are considered important. Printed materials, by themselves, have been shown to have minimal effects (Bunce, 1997; Murphy, 1996).

### **2.11 Benefits of the Employee Assistance Programme (EAP)**

In order to draw a conclusion on EAP benefits, studies regarding EAP evaluation and results were reviewed. There are various methods and outcomes used to evaluate the effectiveness of EAP. Even though studies on EAP evaluation were still lacking, Csiernik (1995) had noted that in literature, more studies were conducted on how to conduct such research as compared to ones that had actually been carried out. The criteria for satisfactory EAP evaluation should include the collection of uniform and standardized data that would allow comparison with other studies, a true experimental research design, the inclusion of employees who use other kinds of mental health services, linking mental health status of individuals with their counseling utilisation rates, the use of adequate control groups, collection of data at least three years prior to

and three years following the EAP intervention, random assignment of employee to different treatment and non-treatment conditions, the employment or work-performance indicators and a cost-benefit or economic analysis (Albert, Smthe, & Brook, 1985; Blaze-Temple & Howat, 1997; M. T. French, Zarkin, & Bray, 1995; Macdonald et al., 1997).

Benefits of EAP can be divided into personal and organisational effects. Personal benefits involve a reduction in an individual's perceived stress and other psychological symptoms, improvement of general physical health and increased job satisfaction. Organisational outcomes will look into reduction in sickness absenteeism, medical cost claims and increase productivity. However, most of the earlier studies only looked into job performance indicators (Alander & Campbell, 1975; Asma, Hilker, Shevlin, & Golden, 1980).

As for organisational benefit, few studies showed a positive result in reduction of sickness absence rate. This reduction was maintained even after five years of intervention (Asma et al., 1980). Grievances and disciplinary action were also reduced among EAP users (Alander & Campbell, 1975). Job satisfaction and job retention improved (McClellan, 1989) and workers were more organised by a reduction in tardiness among EAP users (Jerrell & Rightmyer, 1982). Occupational accident also has a substantial impact on operational cost of the organisation. Asma et al (1980) also reported a reduction in occupational accident rate after the introduction of EAP.

Evidence show that in one major Western company's use of intensive case management and EAP intervention, there was a total projected cost saving of USD\$3,575,349 in 18



months (Barba et al., 2004). The cost saving includes reduced number of psychiatric disability, psychiatric visit claims and average lost work time.

Research priority is not appropriately given to EAP organisational services as compared to other areas even though some research had already revealed the value of these services (Attridge, Amaral, & Hyde, 2003). EAP interventions showed a number of positive outcomes associated with perceived increases in work motivation, productivity and improved psychological symptoms (Attridge et al., 2003).

While most of the studies targeted organisational effects, less emphasis was given to the personal treatment outcome. EAP providers and users gave positive reports in term of treatment outcome (McClellan, 1989). The personal benefit of EAP towards a reduction in self-perceived stress and workers' productivity had been studied by Ramanathan (1992). He measured self-perceived stress via the Derogatis Stress Profile while productivity was assessed by looking into absenteeism levels, intention to stay and employee performance. Results from that study show that EAP significantly reduced stress level only among those with a high baseline stress level. However, for those with an already low baseline level, there was no significant reduction after EAP intervention. Workers' productivity at two months and four months intervals significantly improved regardless of their baseline level (Ramanathan, 1992). Besides occupational stress, EAP also caters to employees' personal problems that affect their performance such as marital difficulties and financial problems (Quick, 1989). The study also found that married personnel were found to have more stress than singles.

As our industries evolve, EAP has become more rational and significantly important in the modern worksite. Utilisation of EAP was positively associated with workers' belief and confidence towards the programme (Michael, Laura, Paul, & Paul, 1997). Great savings in terms of reduction in workers disability cost, early return to work, medical cost, medicine cost and compensation cost was observed in companies with employers who offer health care benefits ("Employer Health Care Benefit Costs To Rise At Faster Than Expected Rate In 2002," November 27, 2001). This saving is estimated based on prevented medical cost to less expensive care. In a cost-benefit analysis done among EAP users of two years as compared to a non-EAP user, total in-patient and out-patient medical costs were significantly lower in the EAP user group. The magnitude of savings can go up to a 6:1 return of investment (Dianas, 1996). Workers are encouraged to utilise the EAP service as a screening net before a referral to a psychiatrist is done for mental problems. Average psychiatric claims cost was reduced by 58% among the EAP users group as compared to non-EAP users (Dianas, 1996). However for this present study, the investigator is not able to evaluate the effect on medical cost claims due to the inability of data on an individual basis. The treasury department of the university only keeps the medical cost claims data according to panel clinics.

EAP services worldwide have various types of approaches. However, certain core services concepts are identical such as identification of workers with performance problems, encourage them to be involved in EAP services, create micro-linkages between EAP and employees or macro-linkages between EAP and employers. Employers need to understand and comprehend the nature of psychological problems together with its management and potential outcomes. Outcomes like retention of employees, increase work performance and reduced supervisory workload will advocate

higher commitment from employers. Robust opinions from managers play an important role in stress reduction targets. Karim et al (2005) found that managers' attitudes toward stress management programmes were associated with managers' confidence on the efficacy of EAP (Karim, Mir, & Bingi, 2005).

Employee Assistance Programmes can also demonstrate their effectiveness in individual and corporate terms as a new way of handling the stress of a professional, commercial or creative work life, as well as the non-work stresses experienced by employees and imported by them into the job context.

However, the evidence mainly comes from western countries namely North America and United Kingdom. Most of the studies were conducted by companies that are responsible for the implementation of EAP. Therefore, its effectiveness is still questionable in terms of conflict of interest. These EAP providers might have self-interest in demonstrating the programme's effectiveness so the programmes will be purchased (Berridge et al., 1997; Blaze-Temple & Howat, 1997). The research is usually too brief, without longitudinal data collection and rarely use control groups. The organisations are not allowed to conduct the study themselves due to confidentiality issues (Csiernik, 1995).

# **CHAPTER 3: METHODOLOGY**

## **3.1 Study design**

This study is a randomised-controlled trial with a parallel trial design. The allocation ratio was one to one. It was part of the UM Wellness Programme.

## **3.2 Study area**

The study was conducted in the University of Malaya (UM). UM is Malaysia's first university. It is situated on a 900 acre campus in the southwest of Kuala Lumpur, the capital of Malaysia. The map of the UM campus is attached in Appendix C. The mission of UM is to advance knowledge and learning through quality research and education for the nation and for humanity. Furthermore, UM is looking forward to be an internationally renowned institution of higher learning in research, innovation, publication and teaching. This programme is an effort by the UM management to promote employees' health and well-being in collaboration with the Department of Social & Preventive Medicine, Faculty of Medicine.

The UM Wellness programme offers health screening or health risks assessment which will be able to identify employees who are at high risk for chronic diseases. It was established in response to the Malaysian government's policy (Pekeliling 2003, Bil 3) which encourage all employees aged 40 years and above to conduct health screening and physical examination at regular intervals. The UM Wellness programme offers health screening or health risk assessment which will be able to identify employees who are at high risk for chronic diseases. Risk factors such as high cholesterol level, high blood pressure, obesity, physical inactivity, unhealthy diet, smoking and stress will be identified, followed by health education and/or referral to a clinician/ dietician if the

need arises. A supportive environment in the campus will also be provided such as healthier choices of food to be offered by canteens and cafeterias within the campus, enforcement of a smoking ban on campus etc. The mission of this programme is to educate, support and empower UM staff to make and promote healthy lifestyle choices as well as take a pro-active approach to personal well-being (Moy, 2008).

### 3.3 Study Population

The general population for this study is all UM staff. There is a total of 6,289 staff working in three main sections namely academic (faculties/ centres/ academies/ institutes), administration and facilities and services. The UM organisation can be divided into three main sections:

#### 1. Administration

- Chancellory,
- Deputy Vice-Chancellor Offices,
- Registry
- Bursary.

#### 2. Academics (Faculties / Centres / Academies / Institutions)

- |  |  |
|--|--|
| • Faculty of Arts and Social Sciences                    | • Faculty of Business and Accountancy  |
| • Faculty of Built Environment                           | • Faculty of Dentistry                 |
| • Faculty of Education                                   | • Faculty of Engineering               |
| • Faculty of Law   | • Faculty of Medicine                  |
| • Faculty of Economics & Administration                  | • Faculty of Languages and Linguistics |
| • Faculty of Science                                     | • Academy of Malay Studies             |
| • Faculty of Computer Science and Information Technology | • Academic Development                 |

- |   |   |
|---|---|
|   | Centre  |
| • Academy of Islamic Studies                          | • Institute of Graduate Studies                         |
| • Institute of China Studies                          | • Asia-Europe Institute                                 |
| • Institute of Research Management & Monitoring       | • Institute of Principal-ship Studies                   |
| • University of Malaya Centre of Continuing Education | • International Institute of Public Policy & Management |
| • Centre for Foundation Studies in Science            | • Centre for Civilizational Dialogue                    |
| • Sports Centre                                       |   |

### 3. Facilities and Services

- 13 residential colleges
- Library
- Security
- Health Services
- Transportation
- *Rumah Universiti* (University House)
- Postal Department
- Estate Development and Maintenance Department
- Centre for Information Technology

All employees hold a civil servant status. Typically, employees will continue work with the university until their retirement at the age of 55 to 58 years old. Turnover rate is low and this factor improves the study follow-up. For analysis purposes, the employees were divide into their occupational class namely academicians, administration and professional, support group I and support group II.

Academicians consist of lecturer grade 45 till the highest rank of JUSA A, and they are involved in teaching and research activities. Administration and professional workers are officers grade 41 till the highest rank of JUSA A and hold an administration post or other technical post but are not involved in teaching. Support group I are staff grade 17 to 29 whereby their highest education level was a diploma and/or a certificate or are experienced-based after being promoted from support group II. While support group II are staff grade 1 to 16 whereby their highest education level was secondary and/or primary school.

### **3.4 Sample size**

Intervention trials should have sufficient statistical power to detect differences in groups. Therefore calculation of sample size with provision for adequate levels of significance and power is essential. PS-power and sample size calculation software was used to calculate the sample size. The power of the study was set at 80% and 95% level of significance. Based on the meta-analysis by Richardson K.M. et al (2008), the overall effect size of worksite stress management programme to the improvement of stress symptoms was 0.526. The sample sizes of an intervention group and a comparison group were equal. Calculated sample size for each group was 62. This is in addition to attrition rate of 20%, thus this gives a total sample of 75 per group.

### **3.5 Recruitment, randomisation and blinding**

#### **3.5.1 Recruitment**

Recruitment of study subjects was conducted in University of Malaya (UM). Permission to conduct the study was obtained from the Vice Chancellor of UM. The recruitment

process commenced from 1<sup>st</sup> May 2009 until 30<sup>th</sup> June 2009 for a period of 2 months. Inclusion criteria for this study were UM staff, aged 35 years old and above and those joining the UM Wellness programme. Existing psychiatric problems was an exclusion criteria.

From a total of 1500 respondents who participated in the UM Wellness programme, 200 participants were invited to join the study using convenient sampling. Out of 200 participants, 157 participants agreed to join the study, giving a response rate of 78.5%. As this was a preventive programme, all participants were recruited regardless of their baseline psychological symptoms profile.

However, seven participants were excluded because of existing psychiatric disorders. Out of seven with existing psychiatric disorders, two were diagnosed with major depression disorder, five with obsessive compulsive disorder and two with chronic schizophrenia. All of them were under psychiatric follow-up. Informed consent was obtained from all the eligible participants.

### **3.5.2 Randomisation**

Participants were further randomised into intervention and control groups leaving 75 participants in each group via simple randomisation procedure. To ensure allocation concealment, participants were first arranged according to their names in alphabetical order. A list of random numbers was generated from a computer software programme which was then matched with the participants list. This process produced an allocation sequence that was random in order, and each participant had an equal chance of being assigned to an intervention or comparison group.



### **3.5.3 Blinding**

Single blinding was applied in this study where outcome assessors and data collectors were kept blinded to the allocation. Outcome measures were done by Wellness team members and lab investigations were sent to an independent lab. EAP provider and counsellor were aware of the participants' allocated arm. Participants also were aware of their allocation group because the difference between the intervention and control group was clearly mentioned in their patient information sheet.

## **3.6 Data collection, study instrument and validation**

Data in this study was collected from several sources namely questionnaires, participants' physical examinations, secondary data from the Human Resource Department and laboratory investigations. Baseline information on the subject's age, gender, race, occupational class, employment status, employment duration, marital status, smoking status and exercise adequacy was obtained during baseline screening. The two sets of questionnaires used were the Depression, Anxiety and Stress questionnaire (DASS-21) and the Job Content Questionnaire (JCQ).

### **3.6.1 Depression, anxiety and stress score (DASS-21) questionnaire**

DASS-21 questions were combined with socio-demographic questions. Pre-testing of these questionnaires was done among staff in the Faculty of Medicine. Self-perceived depression, anxiety and stress were measured via the Malay-version of DASS-21. The Malay-version of the DASS-21 questionnaire was validated in the Malaysian population with Cronbach's alpha coefficient of 0.84 (depression), 0.74 (anxiety) and 0.79 (stress) (Ramli et al., 2007). It also had a good loading factor which ranged between 0.39 to

0.73 for all the items and the correlations among all three scales were between 0.54 to 0.68 (Ramli et al., 2007).

There are seven items asked in each scale of the DASS-21 questionnaire (DASS-Depression scale, DASS-Anxiety scale and DASS-Stress scale). Symptoms related to dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia was assessed to measure depression level. Anxiety level was assessed by autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect questions. While the stress scale was measured via symptoms like difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over reactive and impatient. The total score of depression, anxiety and stress were calculated and classified based on the general guidelines for the DASS severity rating (S. H. Lovibond & Lovibond, 2002) as shown earlier in Figure 2.4.

However from a psychometric perspective, DASS as a screening instrument is quite different from a diagnostic instrument. For research purposes, the DASS scale is better analysed as a continuous variable itself rather than classifying them into severity (S. H. Lovibond & Lovibond, 1995). Therefore, for the present study, the score was treated as continuous data. The formula to calculate the total score for each psychological symptom are is shown below:

$$\text{Depression} = Q3 + Q5 + Q10 + Q13 + Q16 + Q17 + Q21$$

$$\text{Anxiety} = Q2 + Q4 + Q7 + Q9 + Q15 + Q19 + Q20$$

$$\text{Stress} = Q1 + Q6 + Q8 + Q11 + Q12 + Q14 + Q18$$

### 3.6.2 Job content questionnaire (JCQ)

Job strain and work psychological exposure were measured by using the validated Malay version of the Job Content Questionnaire (JCQ). Hadi et al (2006) found that Cronbach's alpha coefficients were 0.75 (decision latitude), 0.50 (job demand) and 0.84 (social support). The variables measured through the JCQ were Job Skill Discretion, Decision-making Authority, Decision Latitude, Co-worker Support, Supervisor Support and Job Insecurity.

The formula used for each psychological work exposure variable are listed below:

	<u>Possible range</u>
Job skill discretion = $[q1 + q3 + q5 + q7 + q9 + 5 - q2] \times 2$ .	12-48
Job decision-making authority = $[2(q4 + q6 + q8)] \times 2$ .	12-48
Job demands = $3(q10 + q11) + 2(15 - q12 - q13 - q14)$ .	12-48
Co-worker support = $q16 + q17 + q18 + q19$ .	4-16
Supervisor support = $q20 + q21 + q22 + q23$ .	4-16
Job insecurity = $q24 + q25 + q26 + 5 - q15$ .	3-12
Job decision latitude = skill discretion + decision-making authority	24-96

The total score of the skill discretion scale and the decision-making authority scale created a new scale namely job decision latitude. The median for each variable were obtained and classified accordingly. Psychological work exposure was defined as:

- 1) A score above the sample median on job demands.
- 2) A score below the sample median on job decision latitude.
- 3) A score below the sample median on co-worker support.
- 4) A score below the sample median on co-worker support.
- 5) A score below the sample median on job insecurity.

Those employees with high job demands combined with low decision latitude were considered as having high job strain. Low job strain is a combination of low job demands and high decision latitude. Active workers are those with high decision latitude and high job demand whilst passive workers are those with low decision latitude and low job demands. The latter was classified as having non-high job strain (low strain, active and passive). Figure 1 shows the four job strain groups according to these dimensions. Pre-testing of the questionnaire was carried out among staff in the Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya in all occupational class.

		<b>Decision latitude</b>	
		Low	High
<b>Job demand</b>	Low	Passive	Low strain
	High	High strain	Active

Figure 3.1: Job strain model

### 3.6.3 Physical examination

The physical examination was conducted pre- and post-intervention by the investigator and UM Wellness team. Training sessions for the investigator and UM Wellness team was carried out to ensure standardisation of physical examination procedures and to minimise error. In the UM Wellness team, only a competent examiner was selected to measure blood pressure and waist circumference.

Blood pressure (BP) was measured from the right or left arm with an automated blood pressure set. This automated blood pressure set was validated and verified through

periodic preventive maintenance. Unit of BP measurement is in mmHg for both systolic and diastolic pressure. The participant should rest for at least five minutes before the measurement. The participant was asked to sit on the chair with their right or left arm rested on the table at heart level. Appropriate cuff size was used based on the participant's right upper arm size. This is particularly important for obese patients. This automated blood pressure set was validated and acceptable for use in a clinical setting.

Waist circumference was then measured with a measuring tape and recorded in centimetres (cm). The World Health Organisation measurement technique was used for this measurement. Waist circumference is measurement of the waist at the "midpoint between the lower margin of the last palpable rib and the top of the iliac crest (hip bone)." This is also a horizontal measure, parallel to the floor. The participant was asked to stand straight with relaxed abdominal muscles. The measurement should be taken without clothing and at the end of a normal exhalation.

#### **3.6.4 Lab investigation**

Baseline measurements of serum cortisol, fasting serum lipid and fasting blood sugar (FBS) was also taken pre- and post-intervention. Clear instructions not to take any food or drink except plain water for at least eight hours before taking blood was clearly given to the participants through a UM Wellness calling letter and verified again before blood was taken. Blood was taken by the investigator or the UM Wellness team from a venous vessel in cubital fossa. For pre-intervention baseline samples, blood investigation was carried out from July 2009 to September 2009 during the blood screening period of the UM Wellness programme. For post-intervention, blood investigation was done again during the blood screening period of the UM Wellness Programme from April 2010 to Mei 2010. Biochemical measurements were done via blood serum. Indicators tested

were fasting blood sugar, fasting serum lipid and serum cortisol. The blood samples were collected in the morning between 7.00 am to 10.00 am. This is to avoid variability due to the circadian rhythm. Biochemical chemical measurement (serum cortisol, fasting serum lipid and fasting blood sugar level) was performed by the Clinical Diagnostic Lab, University Malaya Medical Centre, an accredited laboratory.

### **3.6.5 Organisational data**

In order to determine the organisational impact, sickness absence records were obtained. Data on sickness absence for pre-, during and post-intervention (April 2009 to September 2009, October 2009 to March 2010 and April 2010 to September 2010) was obtained from the Human Resource Department (HRD), University of Malaya. The data was recorded as days/six months. For outcome purposes, sickness absence within the six months before the intervention started was compared with sickness absence within the six months after the intervention completed. Sickness absence during the six-month intervention period was also presented in process evaluation. This secondary data was carefully extracted by the investigator and HRD staff. Participants were informed about this sickness absence monitoring through 'Patient information sheet' as attached in Appendix E.

During all phases of the study, sufficient effort was spent to ensure that all key data critical to the interpretation of the study were of high quality. A quality monitoring system of forms, data and procedures is crucial and was done periodically in this study.

## **3.7 Study variables**

Socio-demographic and occupational characteristic variables:

1. Sex (Male and Female).
2. Age.
3. Occupational class (Academician, Management Officer, Support Staff Class I and Support Staff Class II).
4. Type of employment (Permanent, contract and temporary).
5. Duration of employment.
6. Marital status (Married and single).
7. Education level (Primary, Secondary and Tertiary).
8. Smoking status (smoker and non-smoker).
9. Exercise (adequate and not adequate).

All the above variables were categorical except age and duration of employment as quantitative variables.

#### Intervention group

- Employee Assistance Programme for stress.

#### Comparison group:

- Self-help material (UM Wellness pamphlet on stress management) as shown in Appendix L.

#### **Primary outcomes**

- Psychological symptoms (all are quantitative variables):
  - Depression score.
  - Anxiety score.
  - Stress score.
- Organisational outcome:

- Sickness Absence (quantitative variable).

### **Secondary outcomes**

- Job strain (High job strain and non-high job strain).
- Work psychological exposure (all are quantitative variables):
  - Skill discretion.
  - Decision-making authority.
  - Decision latitude.
  - Job demand.
  - Co-worker support.
  - Supervisor support.
  - Job insecurity.
- Body mass index (quantitative variable).
- Waist circumference (quantitative variable).
- Fasting Blood Sugar (quantitative variable).
- Systolic and diastolic blood pressure (quantitative variable).
- Fasting serum lipid (quantitative variables):
  - Total cholesterol.
  - Triglyceride.
  - High Density Lipoprotein - Cholesterol (HDL-C).
  - Low Density Lipoprotein - Cholesterol (LDL-C).

For the organisational outcome, only the sickness absence variable can be assessed. After the trial commenced, the Human Resource Department informed us that they were unable to extract data for medical cost claims for each participant. They only kept the records of claim for each panel clinic regardless of the cost for each staff. Thus, the medical cost claim outcome variable was withdrawn.



## **3.8 The intervention programme**

### **3.8.1 The intervention group**

Intervention of EAP for Stress was delivered to participants in the intervention group for the duration of six months, from October, 2009 to March, 2010. EAP for stress includes a half day workshop on Stress Management, two sessions of EAP individual counseling and stress relaxation therapy practice. The workshop was conducted by an EAP specialist and stressed on the understanding of EAP, stress symptoms, identifying sources of stress and acquiring skills on stress relaxation therapy. EAP individual counseling was given once every two months and on an as-needed basis. In every session, participants were allocated 30 minutes to one hour for them to discuss problems especially psychological problems at the workplace. Proper advice was given to participants by the EAP counselor. Counseling was given based on the Mental Health Module by the Disease Control Division, Ministry of Health of Malaysia (Appendix H). Among the topics discussed were anger and conflict management, positive thinking, time management, problem solving and decision making, and self-assertiveness. The stress relaxation therapy taught includes deep breathing exercise, progressive muscular relaxation, imagery and musical therapy. Compliance to the stress relaxation therapy was emphasised during the counseling session.

The Employee Assistance Programme includes:

- One day training programme for participants.
- EAP Individual counseling.
- Stress Relaxation Therapy.

Summary of the intervention components are illustrated in Figure 3.2.

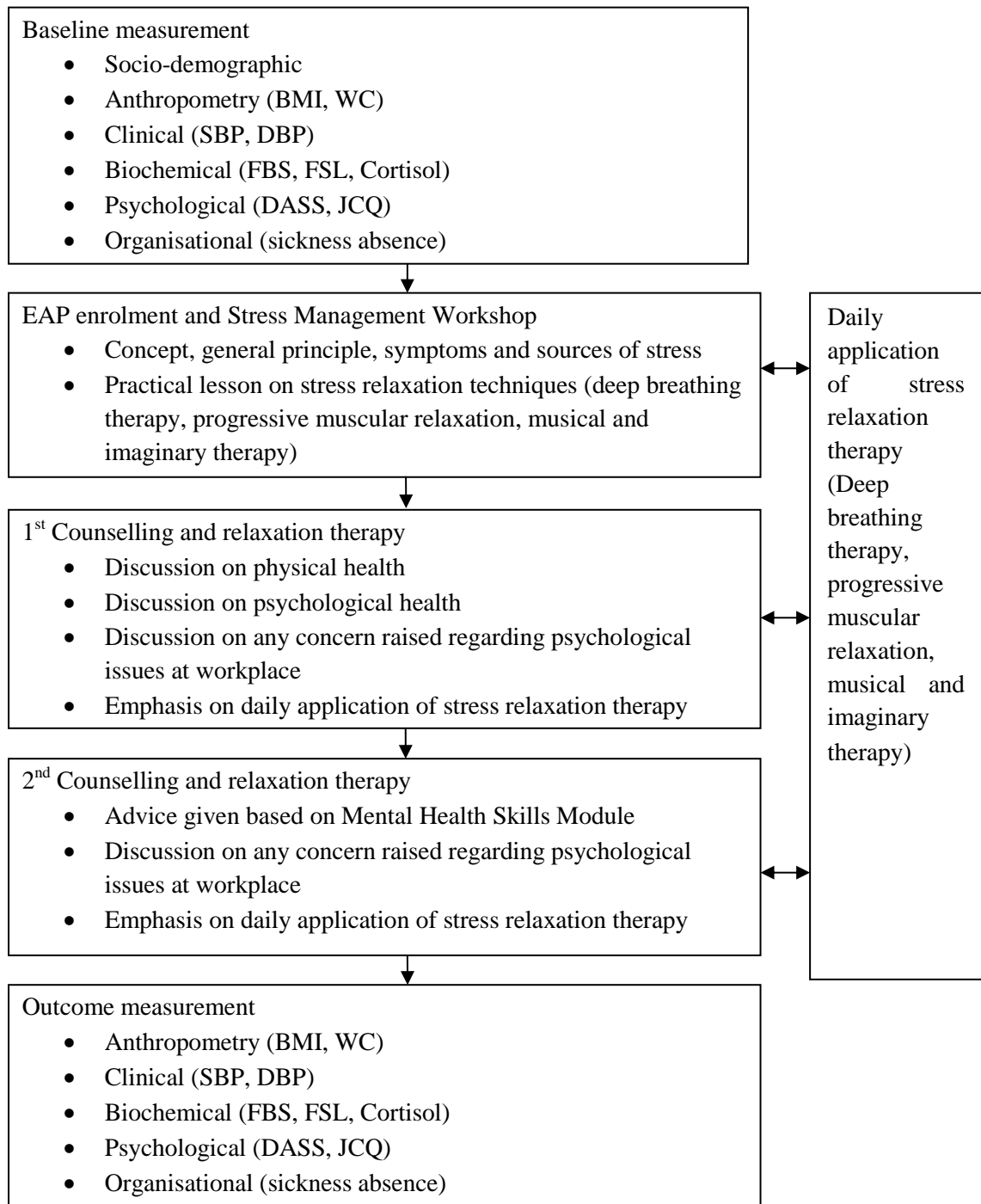


Figure 3.2: Summary of the intervention components for intervention group.

#### 3.8.1.1 Half day training programme for participants

This workshop was carried out by an EAP specialist contracted for service and the investigator. The objectives of this one-day workshop were to ensure participants will:

- Understand the concept of EAP.

- Understand the general principle of stress.
- Recognise symptoms of stress.
- Identify sources of stress.
- Acquire some skills on how to cope with stress.

The workshop started with the theoretical discussions on “What is Stress? (Definition)”; “How does Stress happen and how to make it work”; “Various elements & sources of Stress”; “Job Burnout” and coupled with a simple stress evaluation test that measures stress levels and symptoms of stress for all participants, to help identify and focus on areas that cause stress. Three major stress coping techniques was taught and experienced during the session through role-play and exercises.

In this workshop, participants learned about coping skills. The first coping skill is in relation to oneself, the next is on interpersonal relationships (others) and the third skill is coping with change and transition (environment).

The first coping skill, a creative-based method in managing stress, was applied combined with relaxation techniques using specific breathing, imagery and visualizing methods. The exercise was further enhanced with cognitive restructuring methods in order to complete the full set of the coping skill.

For the second coping skill for stress, interpersonal relationships were enhanced by improved communication skills. The two important components in effective communication that were taught were listening and conveying messages. Participants practiced their communication skills through a series of exercises during the workshop.

For the third coping skill, participants were taught how to handle and cope with organisational change and transition. Every person goes through an internal transition process when external situations or events change. Going through transitions takes a lot of energy and causes both physical and emotional stress. The participants were taught “How to recognise the different stages of transition?” and “How to identify problems occurring from incomplete transitions at the different stages of transition and the various strategies in managing transition?” through lectures and exercises. The presentation module is shown in Appendix I.

The final session was a discussion on a healthy lifestyle, which consists of healthy eating, physical activity and cessation of smoking. Photos during the half-day workshop were shown in Appendix K.

#### 3.8.1.2 EAP Individual counseling

EAP individual counseling was given once every two months and an as-needed basis based on participants’ requirement. In every session, participants were allocated 30 minutes to one hour for them to discuss problems especially regarding the psychological aspects. Counselor established the rapport, showed empathy and reassured the participants. He used active listening by acknowledging, confirming and asking clarification. Appropriate, effective and open-ended questions were asked during the session. After the issue of concern was recognised, relevant stress management techniques was taught to them based on Mental Health Skills Module by the Ministry of Health, Malaysia (Mohd Ali & Ibrahim, 2008). Participants detected to have severe psychological problem were referred to a psychiatrist for further management. A Malay language version of the mental health skills module for working adults was used to

deliver counseling and advice (Appendix H). Topics that were discussed in the module are:

- Anger and conflict management.
- Positive thinking.
- Time management.
- Problem solving and decision making.
- Relaxation techniques.
- Assertiveness.

Compliance with the stress relaxation therapy was also emphasised here. Participants can also discuss their health condition and blood pressure was measured in each session. This counseling session was conducted by the investigator; who is an Occupational Health Doctor with training in EAP counseling.

Investigator had undergone three phases of EAP counseling training by an EAP specialist which consists of:

Phase 1: Counseling Skills for In-house Counselors.

Phase 2: Understanding Clients.

Phase 3: Simulation Exercises.

EAP individual counseling starts by creating a trusting environment that makes the participants more comfortable and more likely to talk. The counseling approach was then explained. Some basic information was gathered by letting the participants talk about the problem based on their own perspective. The resolution, conclusion, goal and expectation of the session was then shared and discussed. When the counseling session ended, the counselor obtained the report of their compliance to relaxation therapy,

emphasised on the application of relaxation therapy and arranged for the next appointment.

### 3.8.1.3 Stress Relaxation Therapy

Stress relaxation therapy was taught to the participants through theory and practical sessions during the workshop. The therapies include deep breathing therapy, progressive muscular relaxation, imagery and musical therapy. The participants were encouraged to practice the combination of all four therapies for about 5 minute especially during lunch break on every working day. In order to ensure compliance with the therapy, self-help material, telephone follow-up and a two monthly one-to-one counseling was emphasised in this therapy. The phone call was done to get a verbal report on compliance to relaxation therapy and also to remind them on the individual counseling appointment. All participants in intervention group were called twice over the period of six months. The best relaxation is achieved by using physical and mental techniques together. Tense muscles will loosen up and relax and the ability to cope with a stress response can be improved with the application of these therapies. This is important in order for us to think clearly and act rationally in the event of a stressful condition.

There are four types of Stress Relaxation Therapy:

#### i) Deep Breathing Therapy

Deep breathing is a simple, but very effective, method of relaxation. It is the core component of everything from the "take ten deep breaths" approach to calming someone down. The diaphragm muscle was utilised in this exercise in order to optimise the inhalation volume (Figure 3.3). Participants were asked to take a number of deep breaths with their eyes closed and relax their body further with each breath. Inhalation was done through the nose and exhaled through the mouth. One hand was placed on the

abdomen and the other hand on the chest to visualise the abdominal and chest movement. The abdomen will protrude outward during inhalation and inward during exhalation. There was minimal movement of the chest as intercostal muscles were the accessory muscle for breathing. Participants were asked to focus on the sound and feeling of long, slow and deep breaths. It works well in conjunction with other relaxation techniques such as Progressive Muscular Relaxation, imagery and musical therapy to reduce stress (Davis, Eshelman, & McKay, 2008).

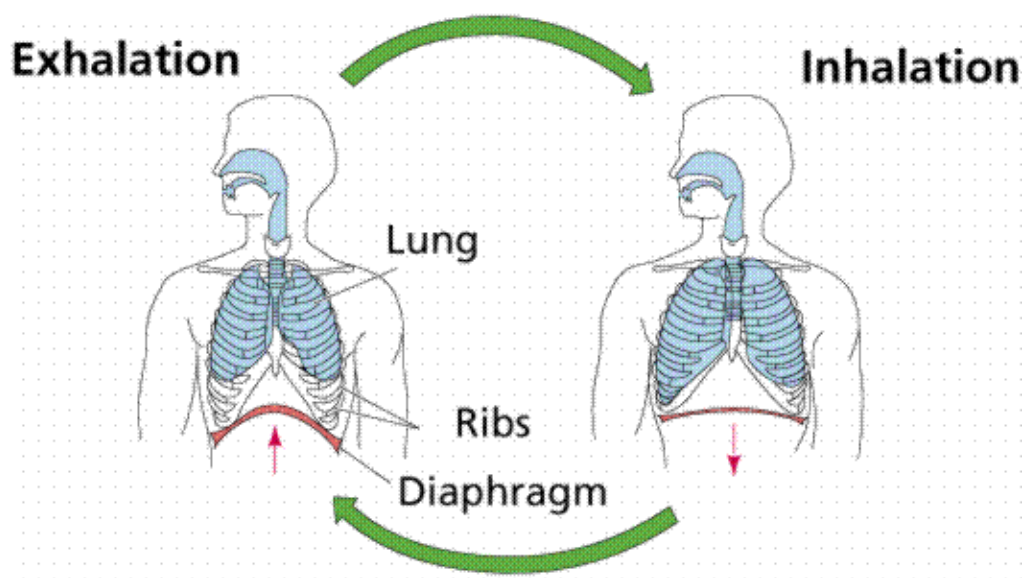


Figure 3.3: Deep breathing technique

## ii) Progressive Muscular Therapy

Progressive Muscular Relaxation (PMR) is a useful technique to release tensed muscles. In this technique, participants were asked to tense a group of muscles so that they are as tightly contracted as possible. They must hold them in a state of extreme tension for a few seconds, and then, relax the muscles normally. Then, consciously relax the muscles even further so that it will be as relaxed as possible. By tensing their muscles first, they will find that they are able to relax their muscles more than would be the case if they tried to relax their muscles directly. Experiment with PMR by forming a fist, and

clenching your hand as tight as you can for a few seconds. Relax your hand to its previous tension, and then consciously relax it again so that it becomes as loose as possible. You should feel deep relaxation in your hand muscles. The detailed instructions of PMR were discussed earlier in section 2.9.2.

### iii) Imagery and Musical Therapy

Imagery is a potent method of stress reduction, especially when combined with physical relaxation therapy. One common use of imagery in relaxation is to imagine a scene, place or event that you remember as safe, peaceful, restful, beautiful and happy. The participants were taught to bring all their senses into the image with, for example, sounds of running water and birds, the smell of cut grass etc.

Imagery therapy was done together with musical therapy. Each participant was provided with Compact Disc (CD) of pleasant and calming music along with music from 'Beethoven'. Sounds of waves crashing against rocks, flowing water and singing birds were available in the CD.

Participants use the imagined scenery as a retreat from stress and pressure. Scenes can involve complex images such as lying on a beach. They might "see" cliffs, sea and sand around them, "hear" the waves crashing against rocks, "smell" the salt in the air, and "feel" the warmth of the sun and a gentle breeze on their body. Sometimes if they are not able to change their environment to manage stress – this may be the case where they do not have the power to change a situation, or when they are about to give an important performance, imagery is a useful skill for relaxing in these situations. They will be aware of how particular environments can be very relaxing, while others can be intensely stressful. The principle behind the use of imagery in stress reduction is that



they can use their imagination to recreate and enjoy a situation that is very relaxing. The more intensely they imagine the situation, the more relaxing the experience will be.

#### Summary of Stress Relaxation Therapy

Deep Breathing, Progressive Muscular Relaxation, and Imagery and Musical therapy are three good techniques that can help participants relax their bodies and manage the symptoms of the fight-or-flight response. With imagery, they substitute actual experience with scenes from their imagination. Their body reacts to these imagined scenes almost as if it was real, calming them down and letting adrenaline disperse.

#### **3.8.2 The comparison group**

The comparison group was given a pamphlet on stress management techniques. Pamphlet dissemination was a conventional method used to convey a message on stress management. The pamphlet used was the type that is usually given during health campaigns in the university and in public. It does not concentrate on occupational stress, but only on general stress conditions. An example of this pamphlet is attached in Appendix J.

#### **3.9 Trial registration and ethical approval**

The protocol for this study was registered with a World Health Organisation (WHO) approved database which is the Iranian Registry of Clinical Trials (IRCT) database and was given a unique registration number (IRCT201102275923N1). Ethical approval for this protocol was obtained from University of Malaya Medical Centre (UMMC) Medical Ethical Committee (MEC/IRB Ref number: 714.16). The ethical issue concerned was confidentiality of participants coming for stress management counseling.

This might be a stigma for them if other co-workers or their supervisor knew that they need to attend a counseling session. In order to resolve this confidentiality issue, the supervisor was only informed that their staff was going for a UM Wellness consultation. Attendance to a UM Wellness consultation was mentioned in the invitation letter and time slip. The ethical approval letter is attached in Appendix D.

### **3.10 Data analysis and interpretation of results**

The data was analysed in SPSS for Windows version 15.0. Level of significance was pre-set at 0.05. The baseline descriptive data was analyzed separately according to the groups (intervention and comparison). All the variables were tested for normality. The data was presented as means with standard deviation (SD) for quantitative variables and frequency with percentages for qualitative variables. Independent t-test were used to analyse the difference between the intervention and comparison groups for baseline quantitative data (age, BMI, waist and hip circumference, fasting blood sugar, fasting serum lipid, blood pressure, depression, anxiety and stress score and sickness absence). As for qualitative variables (sex, race, marital status, educational level, occupational class, employment type, employment duration, smoking status and exercise adequacy), a chi-square test was used. Variables with significant differences were marked accordingly.

The difference between pre- and post-intervention was computed for each of the outcome variables. These variables were tested for differences between the intervention and comparison groups by using an independent t-test. The analysis on the effectiveness of the programme follows the ‘intention to treat’ principle. All randomised participants were included in the analysis according to their original group.

The outcome results were presented with intergroup mean difference, 95% confidence interval, p value and Cohen's d effects size. Intergroup mean differences were calculated based on the difference between mean pre- and post-intervention in the intervention group with mean pre- and post-intervention in the comparison group. It is simplified in the formula below:

Intergroup mean difference =

$$[(\text{mean pre}^I - \text{mean post}^I) - (\text{mean pre}^C - \text{mean post}^C)],$$

where  $\text{pre}^I$  = pre-intervention in intervention group;

$\text{post}^I$  = post-intervention in intervention group;

$\text{pre}^C$  = pre-intervention in comparison group and

$\text{post}^C$  = post-intervention in comparison group.

Cohen (1998) defined  $d$  as the difference between the means,  $M_1 - M_2$ , divided by standard deviation,  $s$ , of either group (J. Cohen, 1988). In practice, the pooled standard deviation,  $\sigma_{\text{pooled}}$ , is commonly used (Rosnow & Rosenthal, 1996). Effect size ( $d$ ) for our study outcomes were calculated based on the formula below:

$$d = [(\text{mean pre}^I - \text{mean post}^I) - (\text{mean pre}^C - \text{mean post}^C)] / \text{pooled standard deviation.}$$

$$\text{Pooled standard deviation, } \sigma_{\text{pooled}} = \sqrt{[\sigma^2_{\text{intervention}} + \sigma^2_{\text{comparison}} / 2]}.$$

# CHAPTER 4: RESULTS

The results presented will include:

- a) Baseline information.
- b) Process evaluation.
- c) Outcome evaluation.

In baseline information, the findings will be presented as follows:

- a) Socio-demographic characteristics of the respondents.
- b) Occupational details and lifestyle behaviour.
- c) Anthropometry, clinical and biochemical measurements.
- d) Self-perceived depression, anxiety and stress.
- e) Psychological work risk factors and job strain.
- f) Sickness absence.

The process was evaluated based on various indicators as listed below:

- a) Response rate during recruitment.
- b) Characteristic of respondents and non-respondents in the intervention and comparison group during recruitment.
- c) Attendance rate of intervention group and adherence to relaxation therapy.
- d) Sickness absence rate during the intervention period.

In outcome evaluation, the effectiveness of the intervention will be assessed according to changes in five categories which include:

- a) Changes in anthropometry, clinical and biochemical measurements.
- b) Changes in self-perceived depression, anxiety and stress.
- c) Changes in psychological work exposure and job strain.
- d) Changes in sickness absence.

## 4.1 Baseline information

### 4.1.1 Socio-demographic characteristics

The participants were University of Malaya (UM) staff from various social backgrounds. There were 75 participants in each intervention and comparison group with a total of 150 participants. As shown in Table 4.1, the majority of participants were of Malay ethnicity, females and married. About half of them had tertiary level education. There were no significant differences in all the socio-demographic characteristics between intervention and comparison group.

**Table 4.1: Socio-demographic characteristic of participants**

		All (n=150) N (%)	Intervention (n=75) n (%)	Comparison (n=75) n (%)	P value
Age, mean (SD)		43.6 (7.4)	43.0 (7.9)	44.2 (6.7)	0.350
Sex	Male	61 (40.7)	27 (36.0)	34 (45.3)	0.320
	Female	89 (59.3)	48 (64.0)	41 (54.7)	
Race	Malay	131 (87.3)	69 (92.0)	62 (82.7)	0.140
	Non-Malay	19 (12.7)	6 (8.0)	13 (17.3)	
Marital status	Single /	29 (19.3)	14 (18.7)	15 (20.0)	1.000
	Divorced				
	Married	121 (80.7)	61 (81.3)	60 (80.0)	
Education level	Secondary and below	79 (52.7)	39 (52.0)	40 (53.3)	1.000
	Tertiary	71 (47.3)	36 (48.0)	35 (46.7)	

#### **4.1.2 Occupational and lifestyle characteristic**

Most of the participants (64%) were from the occupational class support group (support group I and II) whilst 25.3% were academicians and 10.7% were administration officers (Table 4.2). There were an equal number of support group workers in the intervention and comparison groups. Most of the participants in both groups were permanent workers. Mean duration of employment in the intervention and comparison group was  $14.50 \pm 9.86$  years and  $11.90 \pm 8.23$  years respectively. Overall, their mean duration of employment was  $13.22 \pm 9.15$  years.

Most of the participants (60%) did not have adequate exercise and 23.3% were not doing routine exercise at all. Less than a quarter of them (16.7%) claimed that they did exercise at least three times a week for at least 30 minute each session. A total of 13.3% of them had adequate exercise in the intervention group with only 20.0% in the comparison group. From 150 participants, only 7.3% are current smokers. There were more active smokers in the comparison group as compared to the intervention group. However, there were no significant differences in all occupational and lifestyle characteristics between the intervention and comparison groups.

**Table 4.2: Occupational details and lifestyle characteristic of participants**

		All (n=150) N (%)	Intervention (n=75) n (%)	Comparison (n=75) n (%)	P value
Occupational class	Academician /	54 (36.0)	27 (36.0)	27 (36.0)	1.000
	Administration				
	Support group	96 (64.0)	48 (64.0)	48 (64.0)	
Employment type	Permanent	139 (92.7)	71 (94.7)	68 (90.7)	0.533
	Contract	11 (7.3)	4 (5.3)	7 (9.3)	
Employment duration	≤10 years	70 (46.7)	31 (41.3)	39 (52.0)	0.252
	>10 years	80 (53.3)	44 (58.7)	36 (48.0)	
Smoking status	Yes	11 (7.3)	2 (2.7)	9 (12.0)	0.056
	No / Ex-smoker	139 (92.7)	73 (97.3)	66 (88.0)	
Exercise	Adequate	25 (16.7)	10 (13.3)	15 (20.0)	0.381
	Not adequate / not at all	125 (83.3)	65 (86.7)	60 (80.0)	

### 4.1.3 Anthropometry, biochemical and clinical data

As shown in Table 4.3, mean BMI for all participants (26.59 kg/m<sup>2</sup>) were within the overweight range. Mean BMI in the comparison group was higher (27.26 kg/m<sup>2</sup>) than the intervention group (25.98 kg/m<sup>2</sup>) but it was not statistically significant.

Overall mean waist circumference for males (93.16 cm) and females (84.09 cm) were within the normal range. There was a significant difference in waist circumference between the intervention group (85.24 cm) and the comparison group (90.48 cm). The

comparison group had a larger mean waist circumference as compared to the intervention group.

The mean fasting blood sugar among all participants was within the normal range. Blood pressure measurement showed a normal range of mean systolic and diastolic blood pressure. Among all subcomponent of fasting serum lipid (FSL), only mean LDL-Cholesterol showed an unhealthy level. The mean total cholesterol, triglyceride and HDL-Cholesterol were within the normal range. Serum cortisol of all participants was within normal range from the pathological level. Even though serum cortisol level was significantly higher in the intervention group as compared to the comparison group, their levels were still normal.



**Table 4.3: Baseline anthropometry, biochemical and clinical measurement of participants**

	All Mean (SD)	Intervention Mean (SD)	Comparison Mean (SD)	P value
BMI, kg/m <sup>2</sup>	26.59 (4.74)	25.98 (4.65)	27.20 (4.77)	0.116
Waist circumference, cm	87.80 (11.56)	85.24 (10.78)	90.31 (11.82)	0.007*
Fasting blood sugar, mmol/l	5.39 (1.77)	5.40 (1.68)	5.37 (1.86)	0.894
Triglyceride, mmol/l	1.32 (0.79)	1.23 (0.78)	1.41 (0.79)	0.159
Total cholesterol, mmol/l	5.45 (1.15)	5.45 (1.11)	5.45 (1.20)	0.989
HDL-Cholesterol, mmol/l	1.33 (0.31)	1.35 (0.26)	1.30 (0.34)	0.379
LDL-Cholesterol, mmol/l	3.52 (1.05)	3.55 (1.05)	3.50 (1.06)	0.779
Serum cortisol, nmol/l	314.05 (128.21)	335.15 (139.01)	292.96 (113.36)	0.044*
Systolic BP, mmHg	128.00 (11.56)	126.79 (17.20)	129.20 (17.52)	0.396
Diastolic BP, mmHg	80.98 (11.18)	80.28 (11.11)	81.68 (11.29)	0.445

\*denotes a significant difference

Figure 4.1 shows the BMI classification in the intervention and the comparison groups. Most of the participants (42.7%) in the intervention group had normal BMI followed by overweight (34.7%), obese (18.7%) and underweight (4.0%). However, in the comparison group, a higher percentage (41.3%) of participants had overweight BMI although there was no significant difference in mean BMI for both groups.

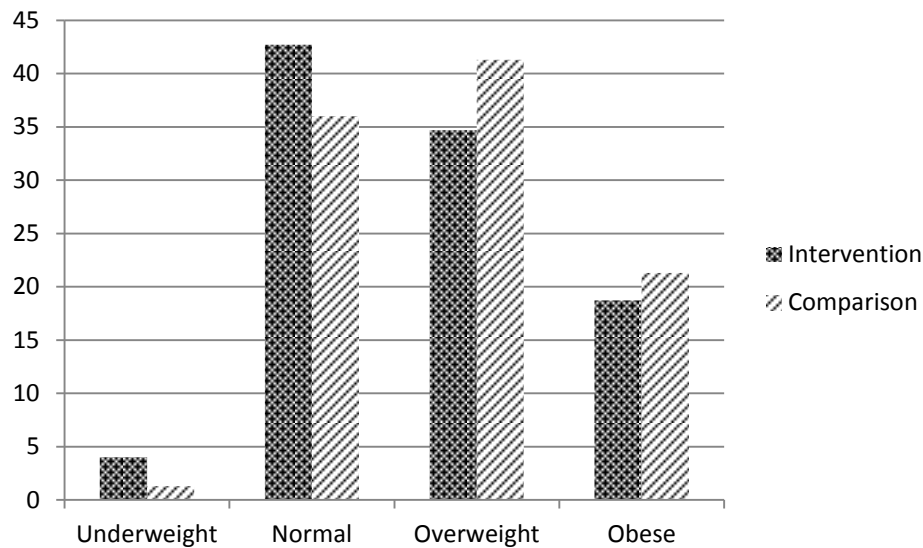


Figure 4.1: BMI classification in intervention and comparison groups

#### 4.1.4 Self-perceived depression, anxiety and stress

There were no significant differences in self-perceived depression, anxiety and stress scores between the two groups as shown in Table 4.4. Mean score for depression was  $5.36 \pm 2.63$  in the intervention group and  $4.95 \pm 3.26$  in the comparison group. Baseline self-perceived depression in both groups were at the borderline between normal and mild depression. For the anxiety score, the intervention and comparison groups scored  $6.35 \pm 2.72$  and  $5.87 \pm 2.94$  respectively. Both groups were within the range of mild anxiety level. The participants also had symptoms of normal to mild stress where they scored  $7.89 \pm 2.90$  and  $7.56 \pm 3.11$  respectively on the stress scale in the intervention and comparison groups.

**Table 4.4: Baseline self-perceived depression, anxiety and stress of participants**

	All Mean (SD)	Intervention Mean (SD)	Comparison Mean (SD)	P value#
Depression score	5.15 (2.96)	5.36 (2.63)	4.95 (3.26)	0.395
Anxiety score	6.11 (2.84)	6.35 (2.72)	5.87 (2.94)	0.301
Stress score	7.73 (3.00)	7.89 (2.90)	7.56 (3.11)	0.498

Figures 4.2 to 4.4 show the level of self-perceived depression, anxiety and stress after being categorised into its severity group. 44 (58.7%) of the participants in the intervention group and 48 (64.0%) participants in the comparison group had normal levels of self-perceived depression. The others (41.3% in the intervention group and 36.0% in the comparison group) were considered as abnormal (mild to very severe) self-perceived depression.

About three quarters of participants in the intervention (78.7%) and comparison groups (70.7%) had at least mild anxiety symptoms. This was the highest among all other psychological symptoms. About 14.6% of participants in the intervention group and 12.0% in the comparison group had severe to very severe anxiety symptoms.

As for self-perceived stress symptoms, 47 (62.7%) in the intervention group and 41 (54.7%) in the comparison group had experienced at least mild stress. There were no significant differences between the intervention and comparison groups in all three self-perceived psychological symptoms ( $p>0.05$ ).

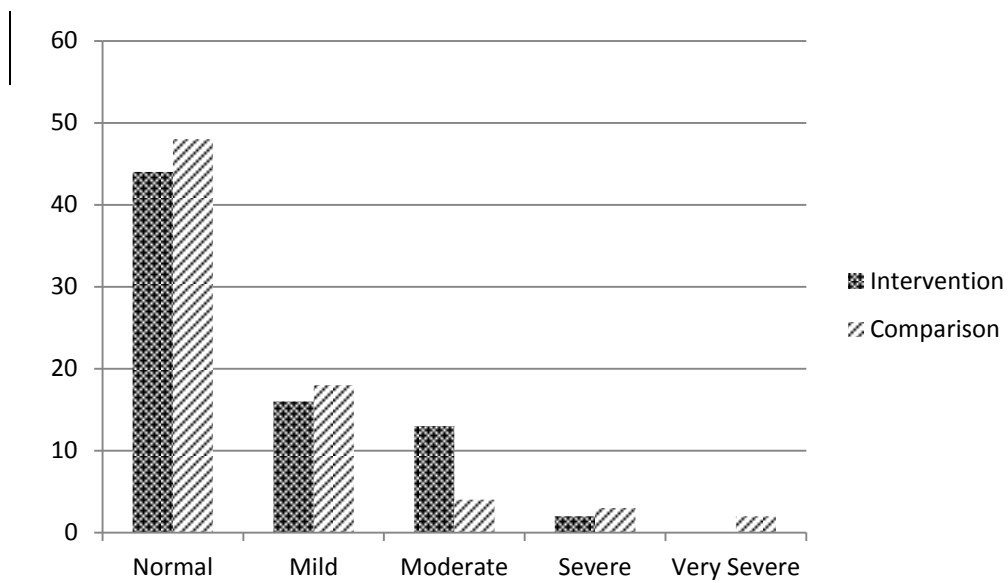


Figure 4.2: Self-perceived depression level among participants in the intervention and comparison groups.

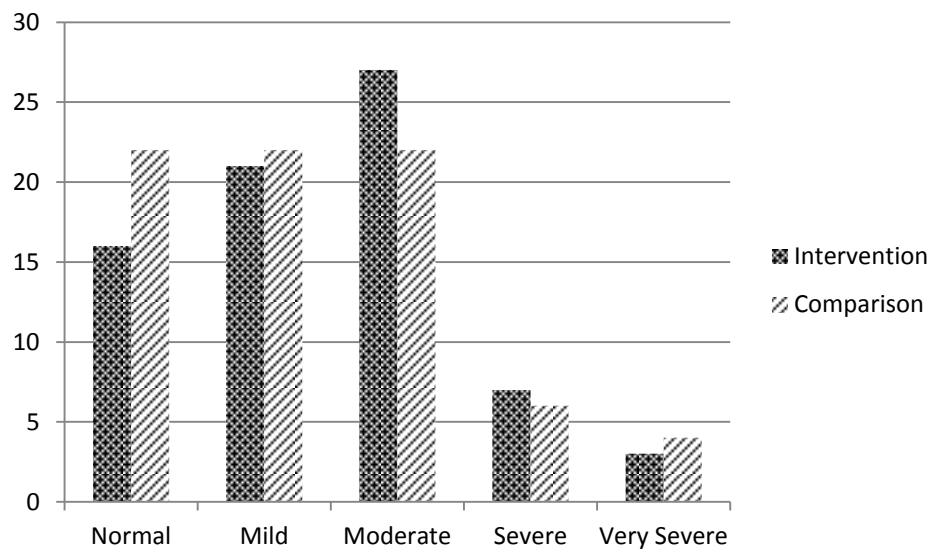


Figure 4.3: Self-perceived anxiety level among participants in the intervention and comparison groups.

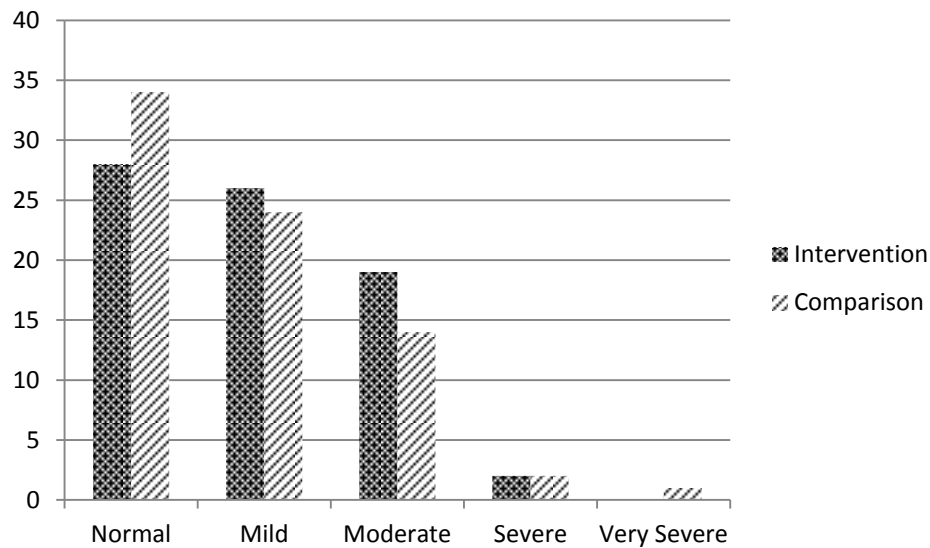


Figure 4.4: Self-perceived stress level among participants in the intervention and comparison groups.

Figure 4.5 to 4.7 show the percentage of abnormal (at least mild) self-perceived psychological symptoms among participants in the intervention and comparison groups according to their occupational class. Workers in the support group II class had the highest percentage of abnormal self-perceived depression symptoms in the intervention (48.4%) and comparison (48.1%) groups as compared to the other occupational class. On the other hand, administration officers had the lowest percentage of abnormal self-perceived depression in both groups.

The occupational class pattern in the other self-perceived psychological symptoms were similar to self-perceived depression. Workers in support group II class had the highest percentage of abnormal self-perceived anxiety and stress in both groups followed by workers in support group I, academicians and administration officers.

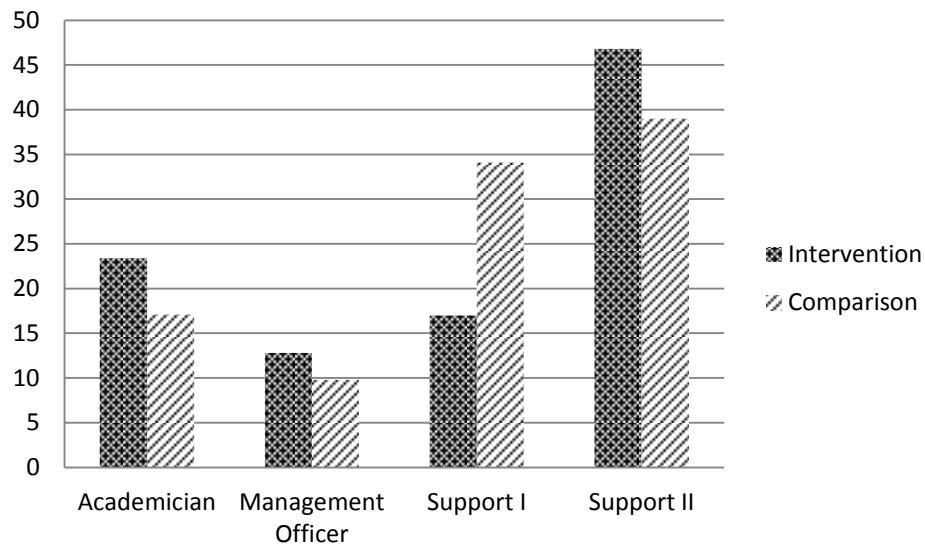


Figure 4.5: Percentage of abnormal self-perceived depression among participants in the intervention and comparison groups according to their occupational class.

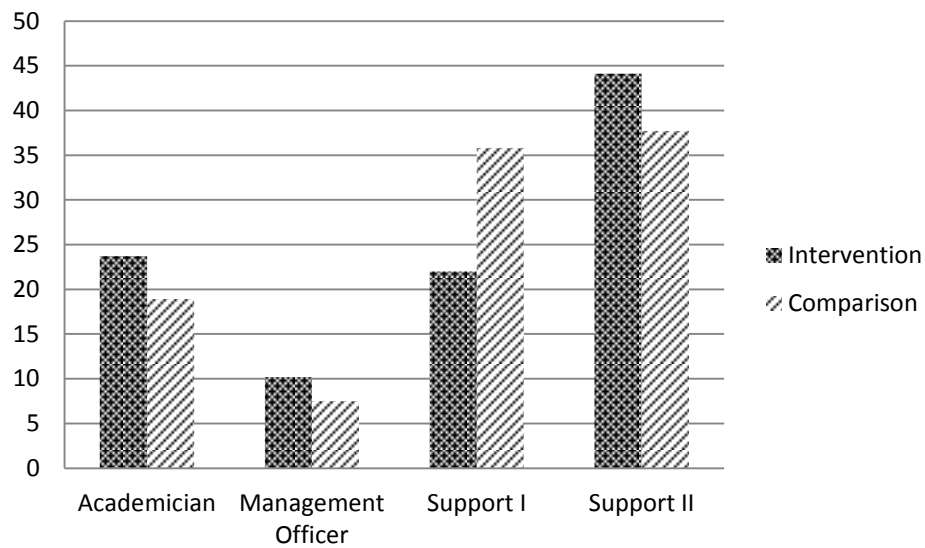


Figure 4.6: Percentage of abnormal self-perceived anxiety among participants in the intervention and comparison groups according to their occupational class.

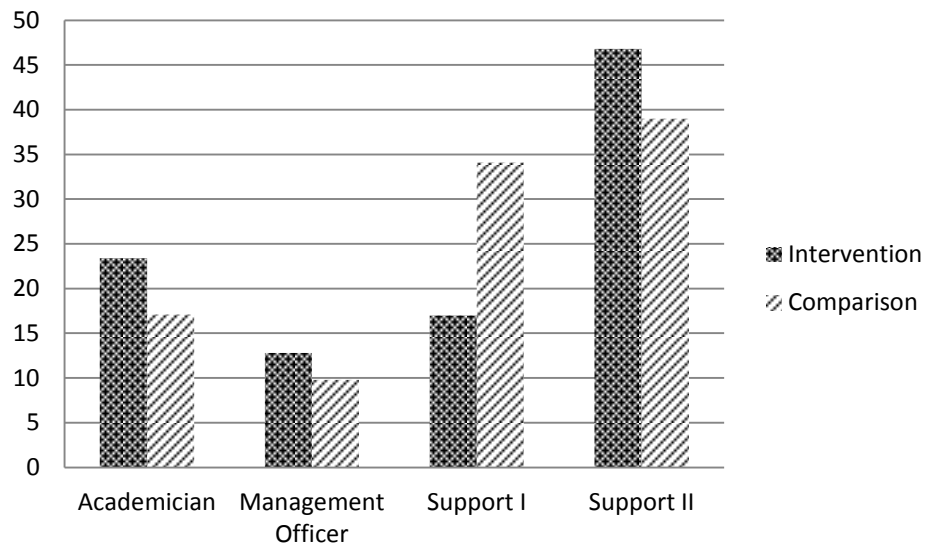


Figure 4.7: Percentage of abnormal self-perceived stress among participants in the intervention and comparison groups according to their occupational class.

#### 4.1.5 Job strain and work psychological risk factors

Referring to Table 4.5, job strain among participants was 21.3% in both the intervention and comparison groups. There was no significant difference in all the work psychological indicators between the intervention and comparison groups except for ‘decision-making authority’. However, after it was formulated into ‘decision latitude’ (decision latitude = skill discretion + decision-making authority), there was no significant difference between the two groups.

**Table 4.5: Baseline job strain and psychological exposure score of participants**

	All Mean (SD)	Intervention Mean (SD)	Comparison Mean (SD)	P value#
High job strain, n (%)	32 (21.3)	16 (21.3)	16 (21.3)	1.000
Skill discretion	35.18 (5.97)	35.88 (6.61)	34.48 (5.20)	0.152
Decision-making authority	32.11 (6.48)	30.63 (6.29)	33.60 (6.37)	0.005*
Job demands	33.83 (5.42)	33.85 (5.44)	33.80 (5.44)	0.952
Co-worker support	11.23 (1.77)	10.97 (1.62)	11.49 (1.89)	0.073
Supervisor support	10.60 (2.22)	10.41 (1.85)	10.79 (2.53)	0.304
Job insecurity	5.43 (1.50)	5.20 (1.32)	5.65 (1.63)	0.063
Decision latitude	67.29 (9.98)	66.51 (10.44)	68.08 (9.49)	0.336

# test done between intervention and comparison group

\*denotes a significant difference

Table 4.6 shows the types of job strain among the intervention and comparison groups. More than a quarter of the participants in both groups had a passive job. There were a similar percentage of participants with high job strain in both groups. There were no significant differences in all types of job strain between the two groups.

**Table 4.6: Type of job strain**

Types of job strain	Intervention n (%)	Comparison n (%)	P value
Low strain	15 (20.0)	17 (22.7)	0.817
High strain	16 (21.3)	16 (21.3)	0.833
Passive job	23 (30.7)	23 (30.7)	0.635
Active job	21 (28.0)	19 (25.3)	0.752



The participants were considered to be exposed to psychological risk factors when they had low decision latitude, co-worker support, supervisor support, job security, decision-making authority, skill discretion and high job demand. Figure 4.8 shows work psychological exposure in both groups.

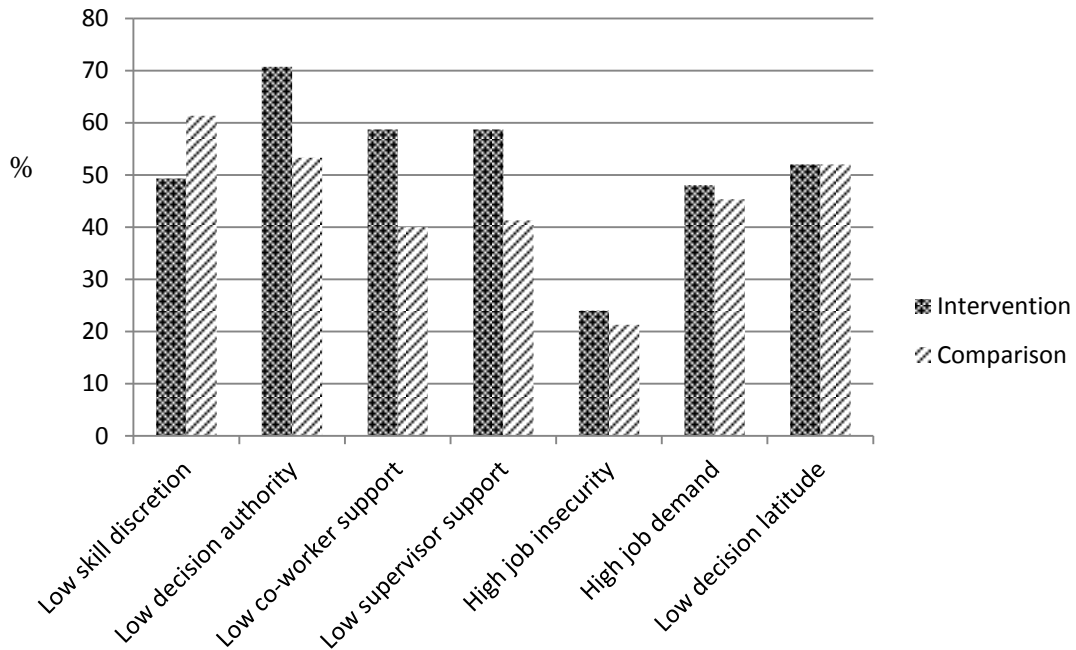


Figure 4.8: Percentage of work psychological exposure among participants in the intervention and comparison groups.

More than half of the participants in the intervention group were exposed to low decision-making authority (70.7%), low co-worker support (58.7%), low supervisor support (58.7%) and low decision latitude (52.0%). On the other side, more than half of the participants in the comparison group were exposed to low skill discretion (61.3%), low decision-making authority (53.3%) and low decision latitude (52.0%). Less than a quarter of participants claimed that they had high job insecurity in both the intervention (24.0%) and comparison (21.3%) groups.

Among those having high job strain in the intervention and comparison groups, 68.7% of workers were from support group (I) and (II). These were followed by academicians and administration officers. On the other hand, 35.0% and 44.0% of academicians in the intervention and comparison groups respectively reported having an active job. Figure 4.9a and 4.9b shows the occupational class classification among those having high job strain in the intervention and comparison groups respectively.

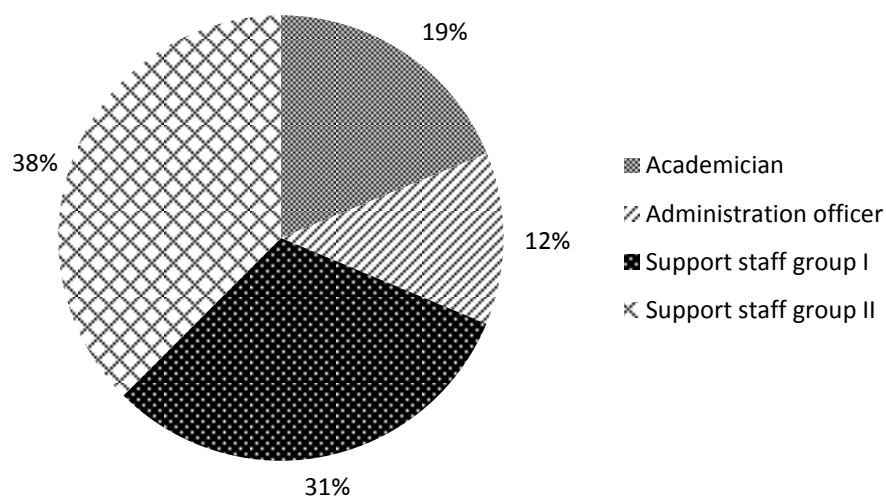


Figure 4.9a: Occupational class classification among participants with high job strain in the intervention group.

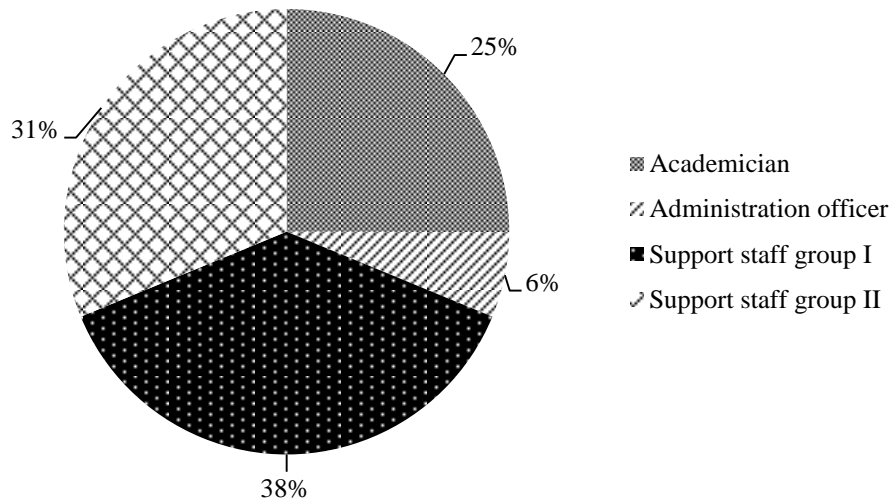


Figure 4.9b: Occupational class classification among participants with high job strain in the comparison group.

#### 4.1.6 Sickness absence

At baseline, the mean sickness absence (six months before intervention started) for all participants was  $2.12 \pm 4.65$  days/6 months. There was no significance difference in mean sickness absence between the intervention ( $2.23 \pm 4.81$  days/6 months) and comparison groups ( $2.01 \pm 4.52$  days/6 months) ( $p = 0.780$ ). Two participants were excluded from the analysis because their sick leaves were more than 30 days. The long sick leave was because both of them had major surgery in the hospital and required longer sick leave post-operation. For comparison, incidence of sickness absence was also calculated for a one year period (six months before and six months during the intervention period). Incidence of sickness absenteeism among all participants was  $5.47 \pm 12.10$  days per year.

Overall, support group II ( $3.77 \pm 6.89$ ) had significantly higher sickness absence as compared to academicians ( $0.55 \pm 1.62$  days/6 months) and support group I ( $1.13 \pm 1.61$

days/6 months) ( $p < 0.05$ ). Academicians had the lowest mean sickness absence followed by support group I, professional officers ( $2.38 \pm 2.34$  days/6 months) and support group II. Males ( $2.30 \pm 5.12$  days/6 months) had a higher mean of sickness absence than females ( $2.00 \pm 4.65$  days/6 months) but the difference was not statistically significant.

## **4.2 Process evaluation**

### **4.2.1 Response rate during recruitment**

As was presented in section 3.4, the final total for the recruitment was 150 participants which were randomised into 75 participants in each group. Baseline measurement was done on participants (100%) during the UM Wellness screening day. Figure 4.10 below illustrates the response rate at every stage from sampling until outcome measurement. Outcome measurement was then carried out after completion of six months of intervention. During these measurements, all 150 participants attended the session. As the analysis used was ‘intention to treat’, all the participants were included in the final analysis even though they did not attend or practice all four interventions. There was no loss of follow-up in this study.

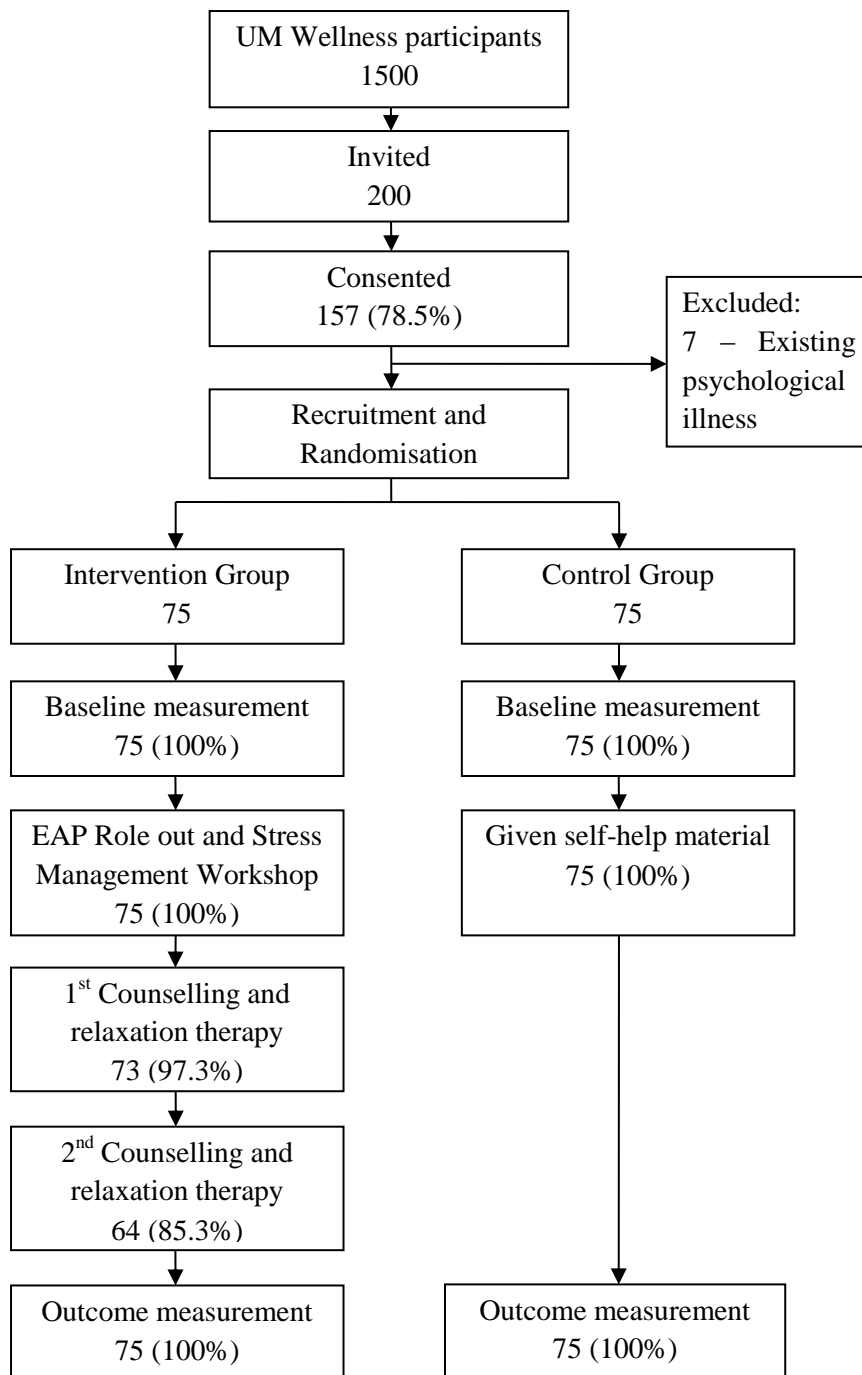


Figure 4.10: Flowchart of the response rate at every stage

#### 4.2.2 Characteristic of respondents and non-respondents during recruitment

Screening was done on all invited participants who came to the UM Wellness programme. Even though only 157 (78.5%) participants consented to joining the study, the baseline measurement among 43 (21.5%) non-respondents were still being measured and compared with the respondents. In order to avoid voluntary bias, we compared some of the baseline variables between respondents and non-respondents. Variables measured were age group, gender, race, smoking status, systolic BP, total cholesterol and fasting blood sugar. As can be seen in Table 4.7, there was no significant difference between respondents and non-respondents in all variables measured.

**Table 4.7: Characteristic of respondents and non-respondents during recruitment**

	Respondent (n=157) Mean (SD)	Non-respondent (n=43) Mean (SD)	P value
Age, years	43.6 (7.4)	46.8 (6.3)	0.112
Male, n (%)	68 (43.3)	19 (44.2)	0.841
Malay race, n (%)	137 (87.2)	38 (88.4)	0.992
Smoker, n (%)	18 (11.3)	5 (11.6)	0.763
Systolic BP, mmHg	127.2 (16.2)	127.4 (18.5)	0.927
Total cholesterol, mmol/l	5.45 (1.19)	5.41 (0.96)	0.654
Fasting blood sugar, mmol/l	5.43 (1.92)	5.49 (1.92)	0.746

#### 4.2.3 Attendance to measurement sessions and intervention programmes

For all participants, attendance to baseline and outcome measurement were examined. All participants (100%) attended the baseline and outcome measurements.

Attendance rate to the intervention sessions provided for participants in the intervention group is shown in Table 4.8. All of them (n=75) attended the group workshop session (intervention 1). Intervention 2 and 3 involved two sessions of individual counselling and these were attended by 97.3% and 85.3% of the intervention and comparison groups respectively. A total of 92% of the intervention group's participants claimed that they adhered to daily self-relaxation therapy (intervention 4).

**Table 4.8: Attendance rate among intervention participants to intervention sessions and adherence to relaxation therapy**

	No	%
Intervention 1: Group workshop	75	100.0
Intervention 2: Individual counselling I	73	97.3
Intervention 3: Individual counselling II	64	85.3
Intervention 4: Adherence to self-relaxation therapy	69	92.0

#### **4.2.4 Sickness absence during the intervention period.**

Sickness absence during the six-month intervention period in the intervention and comparison groups was obtained. There was an increase in mean days of sickness absence in both groups compared to baseline (as shown in 4.1.6). The intervention group had mean days of  $3.79 \pm 11.46$  of sickness absence while the comparison group recorded  $2.91 \pm 6.18$  mean days of absence. However, the difference was not statistically significant.

### **4.3 Outcome evaluation**

Outcome evaluation measured the effectiveness of the programme towards its objectives such as psychological symptoms (self-perceived depression, anxiety and stress), work psychological exposure, anthropometry indicators (BMI and waist circumference), clinical indicators (SBP and DBP), biochemical indicators (fasting serum lipid and fasting blood sugar) and organisational indicators (sickness absence).

#### **4.3.1 Anthropometry, clinical and biochemical changes after six months of intervention in the intervention and comparison groups**

Table 4.9 and 4.10 show the intragroup and intergroup anthropometry, clinical and biochemical changes after six months of intervention in the intervention and comparison groups.

##### **4.3.1.1 Intragroup evaluation**

There was significant increment in BMI and HDL-C in the intervention group at follow up. The mean BMI pre-intervention increased by 0.44 kg/m<sup>2</sup> post-intervention. As for HDL-C level, the mean value increased by 0.08 mmol/l after the intervention. Mean LDL-C showed a significant reduction of 0.17 mmol/l after the intervention.



**Table 4.9: Anthropometry and clinical measurement changes among participants in the intervention and comparison groups after six months**

	Intervention group			Comparison group			Intergroup		
	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Inter-group mean diff^ (95% CI)	P value	<i>d</i>
BMI (kg/m <sup>2</sup> )	25.98 (4.65)	26.42 (4.82)	-0.44* (0.99)	27.20 (4.77)	28.26 (5.25)	-1.06* (3.33)	0.62 (-0.17, 1.41)	0.125	0.252
WC (cm)	85.24 (10.78)	85.39 (10.22)	-0.15 (3.93)	90.31 (11.82)	90.55 (11.84)	-0.24 (4.03)	0.09 (-1.19, 1.37)	0.891	0.023
SBP (mmHg)	126.79 (17.20)	127.07 (19.13)	-0.28 (12.67)	129.20 (17.52)	127.96 (17.06)	1.24 (11.68)	-1.52 (-5.45, 2.41)	0.446	-0.125
DBP (mmHg)	80.28 (11.11)	79.96 (11.84)	0.32 (9.18)	81.68 (11.29)	81.47 (11.05)	0.21 (8.68)	0.11 (-2.77, 2.98)	0.942	-0.012

\*statistically significant intragroup mean difference (p<0.05)

#Mean difference = mean pre-intervention – mean post-intervention

^Intergroup mean difference = mean difference intervention group – mean difference comparison group

**Table 4.10: Biochemical measurement changes among participants in the intervention and comparison groups after six months**

	Intervention group			Comparison group			Intergroup		
	Pre- intervention Mean (SD)	Post- intervention Mean (SD)	Mean Diff# (SD)	Pre- intervention Mean (SD)	Post- intervention Mean (SD)	Mean Diff# (SD)	Inter-group mean diff^ (95% CI)	P value	<i>d</i>
FBS (mmol/l)	5.40 (1.68)	5.37 (1.71)	0.03 (0.81)	5.37 (1.86)	5.53 (2.28)	-0.16 (0.90)	0.19 (-0.09, 0.47)	0.179	0.222
TG (mmol/l)	1.23 (0.78)	1.22 (0.74)	0.01 (0.47)	1.41 (0.79)	1.53 (0.89)	-0.12 (0.52)	0.12 (-0.05, 0.28)	0.156	0.262
TC (mmol/l)	5.45 (1.11)	5.32 (0.85)	0.13 (0.68)	5.45 (1.20)	5.28 (1.13)	0.17* (0.73)	-0.04 (-0.27, 0.19)	0.737	-0.057
HDL(mmol/l)	1.35 (0.26)	1.43 (0.36)	-0.08* (0.26)	1.30 (0.34)	1.32 (0.36)	-0.02 (0.14)	-0.06 (-0.13, 0.01)	0.072	-0.287
LDL (mmol/l)	3.55 (1.05)	3.38 (0.81)	0.17* (0.61)	3.50 (1.06)	3.21 (0.99)	0.29* (0.70)	-0.12 (-0.33, 0.09)	0.274	-0.183
Cortisol (mmol/l)	335.15 (139.01)	324.08 (143.30)	11.07* (74.04)	292.96 (113.36)	302.72 (109.68)	-9.76 (47.39)	20.83 (0.74, 40.91)	<b>0.042</b>	0.335

\*statistically significant intragroup mean difference (p<0.05)

#Mean difference = mean pre-intervention – mean post-intervention

^Intergroup mean difference = mean difference intervention group – mean difference comparison group

As for the comparison group, significant reduction can be seen in total cholesterol and LDL value. Mean total cholesterol and LDL in the comparison group was reduced by 0.17 mmol/l and 0.29 mmol/l respectively. The reduction of LDL in the comparison group was greater as compared to the reduction in the intervention group. Similarly, the comparison group also experienced a significant increment in their BMI value. Higher increment was seen in the comparison group with an increase of 1.06 kg/m<sup>2</sup> in their mean BMI.

Mean serum cortisol level in the intervention group was reduced by 11.07 mmol/l from 335.15 mmol/l (3.3% reduction). Increment by a similar proportion was observed in the comparison group (increased by 9.76 mmol/l from the baseline of 292.96 mmol/l). However, only intragroup mean differences in the intervention group were statistically significant ( $p < 0.05$ ). All the other variables showed no significant changes.

#### 4.3.1.2 Intergroup evaluation

Intergroup mean difference for each indicator was calculated. There were positive value of intergroup mean difference in some of the indicators such as BMI, waist circumference, fasting blood sugar, triglyceride, serum cortisol and diastolic BP. These positive values indicated that there was greater improvement in those indicators in the intervention group as compared to the comparison group even though it was not statistically significant. Serum cortisol showed the greatest intergroup mean difference with statistically significant changes ( $p < 0.05$ ). Cohen's  $d$  for serum cortisol reduction was 0.332, indicated a small effect.

There were no significant changes in all the other anthropometry, clinical and biochemical indicators after the intervention programme.

### **4.3.2 Self perceived depression, anxiety and stress changes after six months of intervention in the intervention and comparison groups**

#### **4.3.2.1 Intragroup evaluation**

Self-perceived depression, anxiety and stress were measured. In the intervention group, mean score for self-perceived depression, anxiety and stress were significantly reduced ( $p < 0.05$ ) as shown in Table 4.11. All this score reduction reflected the reduction in psychological symptoms experienced by participants in the intervention group.

In contrast, the mean score of the comparison group for each of the psychological symptoms increased. The increment for self-perceived depression was statistically significant.

#### **4.3.2.2 Intergroup evaluation**

In the intergroup analysis, self-perceived depression, anxiety and stress showed significant improvement after the intervention. The score for intergroup mean difference for self-perceived depression was 2.29 points with 95% CI of 1.44 to 3.15. This indicates that the intervention group had a greater reduction as compared to the comparison group in depression. The reduction was significant as shown in Table 4.11.

For self-perceived anxiety symptoms, the intergroup mean difference was 1.77 with 95% CI of 0.97 to 2.58. At least one level improvement can be seen in the intervention group. The greatest improvement was seen in self-perceived stress where the intergroup mean difference was 2.36 (95% CI 1.43, 3.29). All the self-perceived psychological symptoms were significantly reduced among participants in the intervention group. Effect size (Cohen's  $d$ ) for self-perceived depression and stress were 0.863 and 0.818

respectively, indicating a large effect. Cohen's  $d$  for self-perceived anxiety was 0.712, indicating moderate effects.

The self-perceived psychological symptoms were then categorised into normal and abnormal. Abnormal symptoms are those with at least mild categories in every symptom. The intervention group had improvement in all psychological symptoms with ORs of 3.37 (self-perceived depression), 3.48 (self-perceived anxiety) and 3.27 (self-perceived stress) as shown in Table 4.12.

**Table 4.11: Self-perceived depression, anxiety and stress score changes among participants in the intervention and comparison groups after six months**

Self-perceived psychological symptoms score	Intervention group			Comparison group			Intergroup		
	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Inter-group mean diff (95% CI)	P value	<i>d</i>
Depression	5.36 (2.63)	3.75 (2.90)	1.61* (2.77)	4.95 (3.26)	5.63 (2.96)	-0.68* (2.53)	2.29 (1.44, 3.15)	<b>&lt;0.001</b>	0.863
Anxiety	6.35 (2.72)	4.83 (3.12)	1.52* (2.75)	5.87 (2.94)	6.12 (3.15)	-0.25 (2.19)	1.77 (0.97, 2.58)	<b>&lt;0.001</b>	0.712
Stress	7.89 (2.90)	5.76 (3.26)	2.13* (2.96)	7.56 (3.11)	7.79 (3.36)	-0.23 (2.81)	2.36 (1.43, 3.29)	<b>&lt;0.001</b>	0.818

\*statistically significant intragroup mean difference (p<0.05)

#Mean difference = mean pre-intervention – mean post-intervention

^Intergroup mean difference = mean difference intervention group – mean difference comparison group

**Table 4.12: Effectiveness of EAP in the improvement of psychological symptoms**

	B	Wald	P value	OR	95% CI for OR
Depression	1.22	5.74	0.017	3.37	1.25, 9.11
Anxiety	1.25	7.60	0.006	3.48	1.43, 8.43
Stress	1.19	8.55	0.003	3.27	1.48, 7.25

Exposure: Exposed to intervention = 1, not exposed to intervention (comparison) = 0; Outcome: psychological symptoms improved

Table 4.13 shows the proportion of at least mild depression, anxiety and stress in both groups pre- and post-intervention. Post intervention, a proportion of at least mild depression was reduced by 17.3% in the intervention group. However in the comparison group, the proportion of at least mild depression was increased from 36% to 52%. About 13 participants had an improvement from at least mild depression to normal in the intervention group and 12 participants experienced deterioration of depressive symptoms in the comparison group. Participants in the intervention group also showed an improvement in anxiety symptoms by 28% but worsened in the comparison group by 2.7%. At least 21 participants experienced this improvement in the intervention group.

The largest improvement of psychological symptoms was found in the self-perceived stress component. 33.4% of participants improved from at least mild stress to normal. This brought about improvement in 25 participants from abnormal to normal level of stress. Participants in the comparison group had a smaller reduction in proportion of at least mild stress. The proportion was reduced by only 1.4%.

**Table 4.13: Proportion of psychological symptom changes after the intervention period**

	Psychological symptoms	Pre-intervention n (%)	Post-intervention n (%)
Intervention group	Depression	31 (41.3)	18 (24.0)
	Anxiety	59 (78.7)	38 (50.7)
	Stress	47 (62.7)	22 (29.3)
Comparison group	Depression	27 (36.0)	39 (52.0)
	Anxiety	53 (70.7)	51 (68.0)
	Stress	41 (54.7)	40 (53.3)

#### **4.3.3 Job strain after six months of intervention in both groups**

Job strain was divided into high job strain and non-high job strain. Non-high job strain includes low job strain, active work and passive work. Percentage of non-high job strain in the intervention group increased from 79% to 85% and the percentage of high job strain in the intervention group was reduced by 6% (Table 4.14). In the comparison group, the percentage of non-high job strain increased from 79% to 80% and the percentage of high job strain reduced by only 1%.



**Table 4.14: Pre- and post-intervention job strain in the intervention and comparison groups**

Type of job strain	Pre-intervention		Post-intervention	
	Non-high strain	High strain	Non-high strain	High strain
	n (%)	n (%)	n (%)	n (%)
Intervention	59 (79)	16 (21)	64 (85)	11 (15)
Comparison	59 (79)	16 (21)	60 (80)	15 (20)

#### **4.3.4 Psychological work exposure changes after six months of intervention in the intervention and comparison groups**

Psychological work exposure through the Job Content Questionnaire was measured at baseline and after the intervention. Change in the organisation and environment of work might contribute to these changes. In the intervention group, there was significant improvement in job skill discretion, job demand, co-worker support, and supervisor support. However, job insecurity score also increased by 0.27. Intra group mean difference score increased in co-worker support (0.55) and supervisor support (0.52). Mean score for job demand and skill discretion reduced significantly by 2.07 and 1.35 respectively. In the comparison group, job skill discretion mean score was increased by 0.8. The other psychological work risk factors showed no significant changes.

The intergroup mean differences for each factor were then analysed. There was a significant difference in skill discretion, job demand and co-worker support. The intergroup mean score for job demand was reduced by 2.68 points with 95% CI of 1.32 to 4.04. Improvement was also seen in co-workers support with a significant increment of 0.49 points. However, mean score in job skill discretion reduced by 2.15 points with

95% CI of 0.65 to 3.65 after the intervention was introduced. Table 4.15 shows the psychological work risk factors changes after six months of intervention in each group.

**Table 4.15: Work psychological exposure changes among participants in the intervention and comparison groups after six months**

Work psychological exposure score	Intervention group			Comparison group			Intergroup		
	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	Mean Diff# (SD)	Inter-group mean diff^ (95% CI)	P value	<i>d</i>
Skill discretion	35.88 (6.61)	34.53 (6.22)	1.35* (5.33)	34.48 (5.20)	35.28 (5.37)	-0.80* (3.83)	2.15 (0.65, 3.65)	<b>0.005</b>	<b>0.463</b>
Decision-making authority	30.63 (6.29)	31.37 (6.75)	-0.75 (4.93)	33.60 (6.37)	33.20 (7.13)	0.40 (4.24)	-1.15 (-2.63, 0.34)	0.129	-0.250
Job demand	33.85 (5.44)	31.79 (4.84)	2.07* (4.85)	33.80 (5.44)	34.41 (6.07)	-0.61 (3.45)	2.68 (1.32, 4.04)	<b>&lt;0.001</b>	<b>0.637</b>
Co-worker support	10.97 (1.62)	11.52 (1.55)	-0.55* (1.31)	11.49 (1.89)	11.55 (1.85)	-0.05 (1.42)	-0.49 (-0.93, -0.05)	<b>0.029</b>	<b>-0.359</b>
Supervisor support	10.41 (1.85)	10.93 (1.84)	-0.52* (1.79)	10.79 (2.53)	10.99 (2.35)	-0.20 (2.02)	-0.32 (-0.93, 0.29)	0.305	-0.168
Job insecurity	5.20 (1.32)	5.47 (1.57)	-0.27* (1.18)	5.65 (1.63)	5.84 (1.69)	-0.19 (1.30)	-0.08 (-0.48, 0.32)	0.694	-0.064
Decision latitude	66.51 (10.44)	65.91 (11.03)	0.60 (7.75)	68.08 (9.49)	68.48 (10.66)	-0.40 (6.60)	1.00 (-1.32, 3.32)	0.396	0.139

\*statistically significant intragroup mean difference (p<0.05)

#Mean difference = mean pre-intervention – mean post-intervention

^Intergroup mean difference = mean difference intervention group – mean difference comparison group

#### 4.3.5 Sickness absence changes after six months of intervention in the intervention and comparison groups.

The baseline mean days of sickness absence were  $2.23 \pm 4.81$  for the intervention group and  $2.01 \pm 4.52$  for the comparison group. Days of sickness absence were reduced from  $2.23 \pm 4.81$  to  $1.45 \pm 2.12$  in the intervention group after six months. Among comparison group participants, their mean days of sickness absence were increased from  $2.01 \pm 4.52$  to  $3.31 \pm 10.30$ . However, the changes in this organisational outcome indicator did not show a statistical significance. The mean difference in sickness absence days was 2.07 with p value of 0.129. Cohen's d for sickness absence was 0.446. Figure 4.11 shows the baseline, during intervention and post-intervention sickness absence for participants in the intervention and comparison groups.

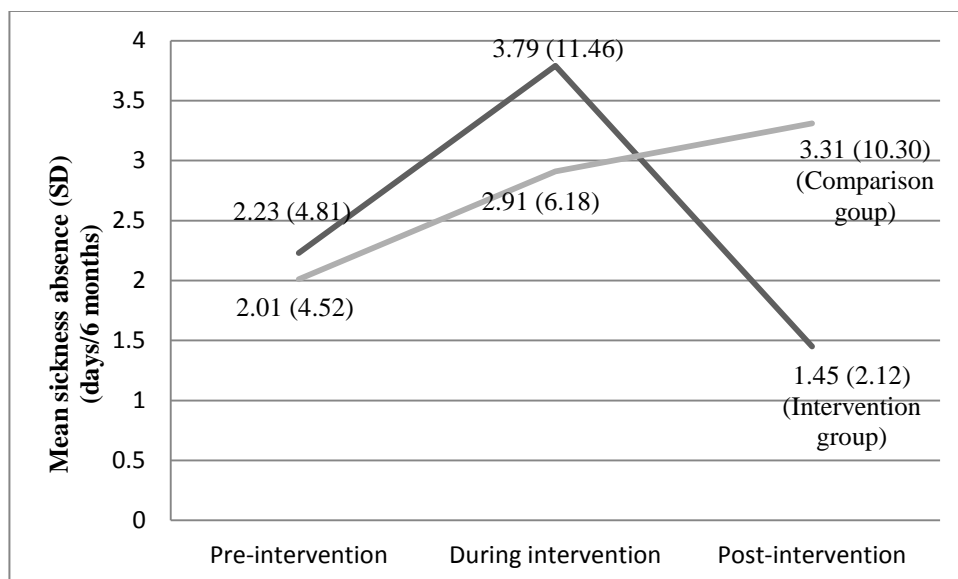


Figure 4.11: Line chart of sickness absence pre-, during and post-intervention in both groups

#### **4.4 Summary of results**

Mean difference for each outcome variable was calculated to determine the impact of the intervention. For psychological health indicators, there were significant differences after the intervention for depression, anxiety and stress scores. There was an intergroup mean difference of 2.29, 1.77 and 2.36 for depression, anxiety and stress respectively in favour of the intervention group. All the self-perceived psychological symptoms were significantly reduced among participants in the intervention group.

Serum cortisol level also showed a significant reduction in the intervention group with inter-group mean difference of 20.83 mmol/l. For all the other anthropometry, clinical and biochemical indicators, there were no significant differences pre- and post-intervention between the two groups.

Days of sickness absence were reduced from  $2.23 \pm 4.81$  to  $1.45 \pm 2.12$  in the intervention group after six months. Among the comparison group participants, mean days of sickness absence were increased from  $2.01 \pm 4.52$  to  $3.31 \pm 10.30$ . However, the changes in this organisational outcome indicator did not show a statistical significance. The mean difference in sickness absence was 2.07 with p value of 0.129.

# **CHAPTER 5: DISCUSSION**

## **5.1 Baseline characteristics of participants**

The participants were University of Malaya staff from various faculties, academies, centres and services. Majority of them were of Malay ethnicity and married. Most of the participants were female and had at least secondary level education. The participants were then divided into intervention and comparison groups by simple randomisation. After randomisation, the participants in both groups shared similar social-demographic backgrounds in age, sex, ethnicity, education levels and marital status. There was no significant difference between the two groups in view of the socio-demographic background.

### **5.1.1 Baseline occupational and lifestyle characteristics of participants**

#### **5.1.1.1 Occupational characteristics**

The occupational classes of all the participants varied from support group up to professional administrator and academician. Most of the participants worked during office hours from 8.00 am until 5.00 pm on weekdays only. University of Malaya is a government statutory body organisation. Therefore the majority of staff is based permanently and has high job security due to their status as government staff. The management of University of Malaya recruits young staff i.e after they leave school or after graduation. Their turnover rate is low and staff tends to stay in the organisation until their retirement. Therefore, there is a similar proportion among participants with more than 10 years (53.3%) and less than 10 years (46.7%) of employment duration. Overall, the participants' mean duration of employment was more than 10 years.

Participation rate from the support staff group was the highest. Among reasons given by them during the counseling sessions were because they were more interested in grabbing an opportunity for free medical screening and services. On the other hand, officers and academicians had a lower participation rate possibly because they had limited time to join the programme and had gone through medical screening in their panel clinic.

#### 5.1.1.2 Lifestyle characteristics

The smoking rate among participants was lower than the general population smoking rate (21.5%) in the 3<sup>rd</sup> National Health Morbidity Survey (NHMS III) (2006). This could be because most of the participants in this study were female and they were non-smokers. Results from NHMS III revealed that only 1.6% females were active smokers, whereas nearly half (46.4%) of the total male population were smokers. Furthermore, University of Malaya as an academic institution was recently enforced as a smoke free compound. The number of smokers might be reduced due to this restriction. There were more ex-smokers in the intervention group compared to the comparison group but the difference was not statistically significant ( $p>0.05$ ).

Nearly two thirds (60.0%) of all participants did not spend enough time exercising or doing some physical activity and merely a quarter (23.3%) did not exercise at all. This finding was almost similar with a study from the Malaysian Adult Nutrition Survey on physical activities, where they found that only 14% of the population had adequate exercise (Poh et al., 2010). While NHMS III (2006) reported that 43.7% of Malaysian adults above 18 years of age were physically inactive. Among the frequent reasons given by participants were not enough time, too tired, no recreational facilities and family commitments. These barriers were similarly reported in other studies (Arzu,

Emine, & Levent, 2006; Heesch, Brown, & Blanton, 2000; Lees, Clark, Nigg, & Newman, 2005). Long travelling time to the workplace was another common reason given by participants during the counseling sessions. As University of Malaya is situated within the Kuala Lumpur city, heavy traffic and working overtime will cause them to reach home late in the evening and it will be too dark for them to do any outdoor exercise by that time. There was no significant difference in occupational and lifestyle characteristics between the intervention and comparison groups. During the individual counseling session, most participants in the intervention group claimed that they knew exercise was important and is able to reduce their stress level.

### **5.1.2 Baseline anthropometry, clinical and biochemical measurements**

#### **5.1.2.1 Anthropometry measurements**

The anthropometry measurement of body mass index (BMI) shows no significant difference between the intervention and comparison groups. Mean BMI for both groups were at the pre-obese (overweight) range. The classification was based on WHO BMI cut-off points as recommended by their expert to retain the classification as an international standard even for the Asian population (Barba et al., 2004). More than half of all participants were overweight either at pre-obese or obese range. This finding was higher than the NHMS III survey where they found that only 29.1% were overweight and 14.0% were obese. Most of the overweight participants were in the 50 to 59 years old age group and this group had the highest mean BMI. However, the differences between age group were not significant.

For waist circumference, the International Diabetes Federation (IDF) has drawn up pragmatic ethnic-specific cut-offs for South Asians (Malay, Chinese and Asian Indian



populations), and its cut-offs are >90cm for men and >80cm for women (Alberti, Zimmet, Shaw, & Grundy, 2006). As for this study, both mean waist circumference for females and males were more than the normal level following the South Asian cut off points. Participants in the comparison group had significantly higher waist circumference compared to the intervention group. However when adjusted for sex, the difference was not significant. According to the respective sex cut-off points, both males and females had nearly similar proportion of abnormal waist circumference which was 62.9% and 63.2% respectively. The percentage of abnormal waist circumference was highest among participants in 50 to 59-year-old age group. Overall, the proportion of abnormal waist circumference for the participants was 62.7%. This figure was remarkably higher than the national prevalence of abdominal obesity based on waist circumference measurement which was 17.4% (Kee et al., 2008).

#### 5.1.2.2 Clinical and biochemical measurements

Mean systolic and diastolic blood pressure in both groups were within a normal range. There was no significant difference in systolic and diastolic blood pressure between the intervention and comparison groups. Only three out of 150 participants (2.0%) had a blood pressure of more than 140/90 mmHg. This finding was lower than other studies in Malaysia where they found that the prevalence of hypertension among Malaysian adults was up to 27.8% (Rampal, Rampal, Azhar, & Rahman, 2008). Although we found that hypertension status was not associated with age ( $p>0.05$ ), but bivariate analysis showed a significant correlation of systolic blood pressure with age ( $r=0.254$ ).

For fasting blood sugar level, baseline measurement was comparable between the intervention and comparison groups. Mean glucose level for both groups was within the normal range. Based on WHO classification for diagnosis of diabetes mellitus (WHO,

2003), only 7.3% of all participants had fasting blood sugar above the normal level. This prevalence was lower than the NHMS III finding where they found 11.6% of the Malaysian population age 18 years and above had diabetes mellitus (Letchuman et al., 2010).

More than half (57.3%) of all participants had total cholesterol level of more than 5.2mmol/l and it was equally distributed between the intervention and comparison groups ( $p>0.05$ ). The mean total cholesterol level for both groups was also above normal level. Proportion of high cholesterol level was highest in 50 to 59-year-old age category in both groups.

Exercise, smoking cessation, low triglycerides level and female sex hormones (oestrogen) were found to have an association with higher HDL level (Couillard et al., 2001; Tran, Weltman, Glass, & Mood, 1983). Percentage of participants who do not exercise at all in the comparison group was higher compared to the intervention group. Higher mean triglyceride level was also found in the comparison group. Furthermore, proportion of current smokers among them was higher too. Meanwhile, in the intervention group, the protective factor of being female was higher. This might be the reason there is lower HDL level in the comparison group as compared to the intervention group. However, the difference was not statistically significant. Mean HDL in both groups was still within a normal range. On the other hand, mean LDL in both groups were at the borderline level, where the intervention group had slightly higher LDL compared to the comparison group. However, their mean triglycerides level was normal in both groups.

Serum cortisol was another biochemical indicator measured. Cortisol is a steroid hormone produced in the adrenal glands in response to stress. In the working population, stress had become part of their routine and this can lead to multiple cardiovascular diseases. Glucocorticoid will promote epinephrine synthesis and inhibit catecholamine re-uptake so that the full action of catecholamines will be achieved. Therefore, the temporal relationship in assessing the impact of cortisol reactivity on cardiovascular function is physiologically acceptable rather than the other way around (Munck & NÁRay-Fejes-TÓTh, 1994).

Heart rate and blood pressure seem to be associated with cortisol reactions in a study done among 24 female students (Uchino et al, 1995). However, in a study done among older women, there was no association between cortisol responses and heart rate reactivity. The cortisol responsivity was only correlated with increasing stress-induced blood pressure (Cacioppo et al, 1995). Greater cortisol response was found in higher cardiac reactors among male students prior to the stress test (Sgoutas-Emch et al., 1994).

Baseline mean serum cortisol level was significantly higher in the intervention group as compared to the comparison group. However, both levels were still normal due to its wide range of reference level. Out of 20 baseline variables (socio-demographic, occupational, lifestyle, anthropometry, biochemical and clinical measurements), only one variable was found to be statistically significant. This observed difference was due to chance as the participants had undergone a proper randomisation process. Altman (1985) recommends that when there was a variable with significant imbalance between the intervention and comparison group and the variable was prognostically important in the determination of the primary outcome, two analyses should be performed. First, an

unadjusted analysis has to be done and then an analysis adjusting for the imbalanced variable. If the two results are essentially the same, this finding indicates that the unadjusted analysis is reasonable. Although the adjusted analysis leads to greater precision in estimating the treatment effect, the unadjusted analysis may be more acceptable to the consumers of the trial (Altman, 1985).

Males had higher mean serum cortisol as compared to females. The mean serum cortisol was highest among those in the 60-years and above age group. Those of Indian ethnicity had the highest mean cortisol among all races, while academicians were highest in terms of occupational class. However, the differences were not statistically significant. This finding was concurrent with the possible effects of high cortisol, which increase blood pressure, blood glucose and abdominal obesity. These co-morbidities were commonly found in males, the elderly and those of Indian ethnicity among the general population. Even in our sample population, males had a higher proportion of BP>140/90mmHg and blood sugar of more than 5.2mmol/l. However for ethnicity and age group, the differences in co-morbidities were not obvious due to low representative from that particular group namely Indian ethnicity and age group of 60 years and above.

### **5.1.3 Baseline self-perceived depression, anxiety and stress**

Stress, anxiety and depression were important outcome measures in various work environments (Bennett, Williams, Page, Hood, & Woollard, 2004; Newbury-Birch & Kamali, 2001). Poor working condition was an important risk factor for stress and therefore, contributed to the development of depression and anxiety (Plaisier et al., 2007). The Depression Anxiety Stress Scale (DASS) was specially designed to measure psychometric symptoms of depression, anxiety and stress efficiently. It was created for

the adult population but usage in older population of more than 60 years of age proved to be appropriate (Gloster et al., 2008).

Based on the DASS-21 scale system, self-perceived depression, anxiety and stress was divided into levels of severity namely normal, mild, moderate, severe and very severe. Cut-off point of  $\geq 78$  percentile scores was used to distinguish between normal and abnormal. Overall, we found that prevalence of self-perceived depression, anxiety and stress among participants was 38.7%, 74.7% and 58.7% respectively. By using the same cut-off point, this figure was much higher as compared to another study in Malaysia that was done among male automotive workers (B. A. Edimansyah, Rusli, Naing, et al., 2008). Meanwhile; when comparing same group workers with actual DASS-21 score (Rusli et al., 2008), the mean score in this study was still higher as compared with the latter in all three psychological symptoms.

There was no significant difference in the depression, anxiety and stress scores in the intervention and comparison groups. However, there was a significant difference between genders. Females tend to have a higher percentage of abnormal depression, anxiety and stress symptoms. However, according to Plasier et al (2007), working conditions did not explain sex differences in the incidence of depressive and anxiety disorders. Lower occupational class were reported to have a higher percentage of abnormal depression, anxiety and stress especially among support group II as in this study. However, the difference was not statistically significant.

#### **5.1.4 Baseline job strain and work psychological exposure**

##### **5.1.4.1 Job strain**

According to Karasek & Theorell (1990), job strain categories were a combination of low decision latitude and high job demand, while decision latitude was based on total of job skill discretion and decision-making authority scores. Based on these two indicators, job type can be divided into high job strain, low job strain, active job and passive job. However, because the classification of interest was high job strain, the other classification was combined into non-high job strain namely low job strain, active job and passive job for the effectiveness of the programme analysis.

There was a similar proportion of high job strain in the intervention and comparison groups. The percentage was similar with another study done among multinational office workers in Malaysia (Maizura et al., 2010). However, high job strain percentage was higher compared to Japanese civil servants (Nasermoaddeli, Sekine, Hamanishi, & Kagamimori, 2002) and Quebec city white collar workers (Bourbonnais, Brisson, Moisan, & Vezina, 1996). A higher percentage of high job strain was found among lecturers in another public university in Malaysia (Huda et al., 2004a). If only academicians were taken into account to compare with the latter study, our findings will show an even lower percentage (18.4%) of high job strain. This might be due to most of them having high decision latitude in terms of skill discretion and decision making authority. Even though academicians had the lowest percentage of high job strain, they have the highest percentage of active job. Their high decision latitude was concurrent with their nature of high job demand.

Support group (I) showed a high percentage of high job strain especially in the comparison group. Support group (I), as an intermediate person between higher and

lower rank categories, have to take care of their subordinates and are also answerable to their higher officers. These are among the commonly reported cause of stress among them. Support group II as a lower occupational class group reported having the highest percentage of passive job. This might be due to their low decision making authority given and lower skill discretion.

#### 5.1.4.2 Work psychological exposure

As discussed earlier, decision latitude was a total of job skill discretion and decision-making authority scores. Based on the median value of the scores, more than half the participants were exposed to work psychological exposure of low skill discretion. Job skill discretion showed a statistically significant correlation with self-perceived depression and anxiety. Even though the correlations were subtle, effects of increased skill discretion with education and on the job training might give substantial effects towards the reduction of psychological symptoms. These findings are consistent with those of Rafferty et al (2001) who found low skill discretion was associated with high emotional exhaustion and depersonalisation and low personal accomplishment. Emotional exhaustion refers to the depletion of one's emotional resources and has been linked to such psychological constructs as tension, anxiety, physical fatigue, depression and insomnia. However, effects of decision-making authority were not statistically significant in the latter study. There were tremendous differences of skill discretion between academicians and professional officers with support group I and II. Percentage of low skill discretion among support group I and II workers were 69.2% and 66.7% respectively. However, the adverse health effect of low decision latitude is more pronounced among the higher category (white collar) workers as compared to blue collar (lower category) workers (Alterman, Shekelle, Vernon, & Burau, 1994).

High job strain was defined by Karasek as an imbalance between job control and job demand that one can exercise at the workplace. Therefore, it is important to balance the job demand based on the worker's skill and the authority given to them to make decision. High demands, low control and low support individually, but particularly if combined, are risk factors for anxiety and depression (Sanne et al., 2005). More than half of participants have low job demands. It is based on a median value of 33.0. This low job demand might be due to good social support from their supervisors and co-workers. There were significant associations between job demand and supervisor ( $p<0.05$ ) and co-workers support ( $p<0.05$ ). Support group I claimed to have the highest percentage of low job demand while academicians reported having the highest percentage of high job demand.

In terms of social support, professional officers recorded the highest percentage of high supervisor and co-worker support and vice versa in support group I. However, these differences were not statistically significant.

Job insecurity was reported by about less than a third of the participants. This might be due to the statutory body status that University of Malaya holds in government. All permanent UM staff were considered as government servants and enjoyed the same benefit as other government staff. Job insecurity was felt highest among professional officers while support group II workers experienced the lowest. Since 2009, UM was reported to have a higher number of workers resigning from their post due to some misunderstanding with the top management (Utusan, 2011). 146 academicians resigned and this might due to the new assessment policy imposed by top management where they have to publish at least one article a year in an ISI-cited journal. This was also the most common cause of stress reported by fellow academicians during the individual



counselling session. A few academicians feel that this new policy puts their career advancement in doubt if they stay with the university. As a result, they moved to the private sector, especially the medical lecturers. After all, UM has succeeded in placing itself in the top 200 in the QS World University ranking in 2011/12. It improved its position from 207<sup>th</sup> last year to the 167<sup>th</sup> position this year. UM top management attributed its success to the policy of encouraging academicians and postgraduate students to improve the quality of research and to publish their findings in the Thomson Institute for Scientific Information Indexed journals. This strict policy had shown its effectiveness even though some argued about it.

Surprisingly, we have found that most of the workers who experience high job insecurity were from the permanent staff. About 23.7% of permanent staff had job insecurity compared to only 9.1% among the contract/temporary staff. This finding was actually similar with De Witte and Naswall (2003) where they found that permanent employees experience a high degree of job insecurity compared to temporary employees. They reported having lower levels of both job satisfaction and organisational commitment compared with temporary employees.

Even though there was a difference between these two groups of employment type, the difference was not statistically significant. The difference in the proportion might be due to low representation from contract workers in this sample population. Whilst it is normal to have a small percentage of job insecurity among permanent workers in an organisation, a high percentage of job security among contract workers in this sample might be due to their high job satisfaction and commitment to the university. In the University of Malaya, even though the worker has the status of contract worker, their contract is usually renewed regularly and sometimes been absorbed as a permanent worker.

Generally, job insecurity is depending on the economic consideration and global competition. Employment rate in Malaysia is considerably high, thus the effect of job insecurity might not be substantial.

Among all five work psychological exposure measured, low decision latitude and high job demand were amongst the highest. These two measures contributed to high job strain. UM staff had a high percentage of protective factors which include high co-workers support, high supervisor support and high job security. These three factors, especially job security, were common among government servants. Social support from supervisors and co-workers may reduce the effects of job strain (R. Karasek & Theorell, 1990).

#### **5.1.5 Baseline sickness absence**

A study among government and private agency workforce in the Klang Valley, Malaysia found that females had significantly higher sickness absenteeism (Saroja, Rampal, & Ainsah, 1995). However, our findings showed no difference between genders. Our incidence of sickness absenteeism was higher as compared to Malaysian immigrants working in Singapore which was 4.3 days per year (Chia, 1988). Baseline sickness absenteeism between the two groups was similar.

There was no significant association between sickness absenteeism and all other socio-demographic characteristics namely age group, race, employment status, marital status, education level, smoking status and exercise adequacy. The greatest difference was among smokers, they have a higher mean of sickness absence compared to non-smokers and ex-smokers but the difference is still not statistically significant ( $p=0.07$ ).

## 5.2 Process evaluation

In order to be able to generalise the findings to the target population, process evaluation was done to ensure an acceptable response rate throughout the study. During the recruitment period, 26.9% of those eligible agreed to join the study. The investigator managed to recruit enough to fulfill the sample size requirement. The characteristic of those who agreed to join the study was also compared with those who did not. The comparison was done based on their age group, sex, race, smoking status, systolic blood pressure, total cholesterol level and fasting blood sugar. Information on characteristics among non-respondents was obtained from the Wellness programme measurement database which was measured at a similar time. All the indicators show no significant difference except for age group. Non-respondents had a higher percentage of the below 40 age group as compared to respondents.

High response rates are an important indicator to prevent bias and loss of power in trials. In this study, attendance rates to the intervention programmes, baseline and outcome measurements sessions were recorded as key indicators for process evaluation. Since this study collaborated with the university's wellness programme, the response rate for the baseline and outcome measurements were very promising. All the participants that consented to joining the programme attended the baseline and outcome measurements. Even though some of the participants did not come according to the appointment given, effort was put in to remind them and set another date for them to attend the session. Participants, especially from the comparison group showed poor attendance during the session. Among the effort taken during outcome measurement was by setting up another session in the Occupational Health Clinic, Faculty of Medicine. This allowed some participants who did not have time during the wellness screening, to come for the outcome measurement. The author managed to finish all the

outcome measurement within a period of two months post-intervention. After all, 100% of participants managed to attend both the baseline and outcome measurements.

As for the attendance rate to the intervention programme, only those in the intervention group were recorded. Interventions were conducted every two months for the period of six months. Total interventions given were three sessions with one group and two individual sessions. During the first group session, participants were taught relaxation therapy and were asked to apply it in their daily life. This application of relaxation therapy was counted as one of the process evaluation indicator. Ranges of response rate for these interventions were from 85.3% to 100%. The highest percentage was during the first group session, which was the Workshop on Stress Management Programme and the lowest was during the final individual counseling. This response rate was good enough and sufficient for generalisation.

A lot of effort was taken to ensure this high response rate. First of all, during the planning stage, the questionnaires were kept as simple as possible. Clear information on the purpose of the study, how the results will be used and terms on confidentiality were completely written in the patients information sheet and further explained briefly during the recruitment. A simplified version of the DASS with 21 questions (DASS-21) was used instead of the full version of the DASS with 42 questions (DASS-42). The whole DASS-21 can be printed on the back-page of a piece of paper, while the front page was used for question of socio-demographic variables. As for the Job Content Questionnaire, only relevant questions that are related to psychological work exposure were included. This gives a total of only 26 questions that can fit in one piece of paper, front and back. With that, the participants only have to deal with two pieces of questionnaire papers front and back. Furthermore, the University's and wellness programme logo was printed

on the upper side of the questionnaire to show the formality, sense of ownership and collaboration with their own organisation. As a result, the participants don't seem to be reluctant to answer the questionnaire and all of them have done it on the spot and returned it after they finished.

Support from the management of the university was obtained and the Human Resource Department was very cooperative by giving a letter of permission to the participants to allow them to attend the intervention programme. Participants were given a time slip every time they attended the intervention. This will act as proof for their supervisor when they return to work. This formal permission from management authority was the main reason given by most of the participants on their ability to attend the intervention.

Before the intervention started, the investigator already knew the participants' names, contact number and their department during the recruitment and baseline measurement. This information was crucial for follow-up and pre-contacts before the intervention sessions. Besides that, participants were also given an EAP enrollment card as a reminder of their appointment date and time. An example of this EAP enrollment card is shown in Appendix G. Incentives was also given to the participants in the form of a Stress Management book and souvenirs like postcards and pens. All the programme activities were conducted at the center of the university to ensure easy accessibility for all participants from various departments and faculties. All these factors contributed towards the high response rate in this study and some of it has been reported as effective ways of increasing response rate in other studies (Edwards et al., 2002; Kypri & Gallagher, 2003).

During the six-month intervention period, sickness absenteeism was also looked into. There was a slight increment in sickness absenteeism during the six-month intervention period as compared to six months pre-intervention. However, the increment was not statistically significant. This might be because the intervention period started at the last quarter of the year (October) until the first quarter (March) of the consecutive year. However, the baseline and post intervention sickness absence measurement was collected from April to September of the respective year. The difference in the sessional period might also affect the sickness absence rate.

### **5.3 Outcome evaluation**

#### **5.3.1 Effects of EAP on anthropometry, clinical and biochemical measurements.**

Even though the main aim was on the improvement of mental health, EAP's counselling also involved encouragement on having a healthy lifestyle such as adequate physical exercise, having a healthy diet and to stop smoking. After all, a healthy lifestyle also helps in the management of mental health. Exercise was found to reduce depression, stress and cardiovascular risk factors (Blumenthal et al., 2005). Physical activity can reduce depressive symptoms in a healthy adult and found to be a protective factor towards anxiety disorders (Carek, Laibstain, & Carek, 2011).

In this present study, there was no proper exercise programme and prescription was given to the participants. Simple healthy diet counselling was given based on their baseline biochemical result (fasting blood sugar and fasting serum lipid). An intensive exercise programme and dietary counselling might be needed to observe greater improvement in body mass index and waist circumference. Mental health and anthropometry measurement was interconnected. Work stress can promote unhealthy eating habits, sedentary lifestyle and therefore contributes to weight gain. Lower job

control, higher job strain, and higher effort–reward imbalance were found to be associated with a higher BMI (Kouvonen, Kivimaki, Cox, Cox, & Vahtera, 2005).

In this study, participants were counselled on how to practice a healthy lifestyle when their blood screening result was revealed during the first counselling session. However, there was no actual physical exercise session organised with the participants in this EAP. Result shows that there was no significant difference in systolic and diastolic blood pressure, all components of cholesterol level, body mass index and waist circumference changes among the intervention group as compared to the comparison group. Eriksen et al. (2002) also found a similar result in his randomised controlled trial whereby the group with only stress management therapy showed an improvement in their psychological management but not the other physical indicators (Eriksen et al., 2002). Linden et al. (2001) reported that an individual approach to stress management was associated with blood pressure reduction and this reduction was mediated by the reductions of psychological stress and improved anger management (W. Linden, Lenz, & Con, 2001). Linden et al (2001) also did not find any significant improvement on cholesterol level and body weight in their randomised controlled trial of an individualised stress management programme (W. Linden et al., 2001). Similar with our finding for systolic and diastolic blood pressure, results from Phase 1 of Trials of Hypertension Prevention also demonstrate that stress management intervention is unlikely to contribute any effect on blood pressure control (Batey et al., 2000).

Incorporation of a stress management programme with other Wellness interventions is very important in order to maintain the improvement of physical and mental health. In a study conducted by Whatmore et al (2006), they found that a stress management programme showed no significant changes in terms of physical health, job satisfaction

and sickness absence in all groups except those who participated in a Wellness programme.

Among all the cholesterol components, triglycerides level show the biggest effect size with Cohen's  $d$  of 0.262. Even though the difference was not significant, the intervention shows a small effect improvement in triglycerides level. Cholesterol and triglycerides level changes under stressful condition (Melamed, Kushnir, Strauss, & Vigiser, 1997) might be due to its correlation with steroidogenesis through hypothalamus-pituitary-adrenal (HPA) axis and monoamine functions. Increased serum cholesterol was observed in patients with anxiety disorder (Bajwa, Asnis, Sanderson, Irfan, & van Praag, 1992). However, Tochigi et al (2002) failed to replicate the result in patients with post-traumatic stress disorder (Tochigi et al., 2002).

Positive effects of stress management towards blood glucose control were found in a few studies (Jablon, Nabiloff, Gilmore, & Rosenthal, 1997; Lane, McCaskill, Ross, Feinglos, & Surwit, 1993; McGrady, Bailey, & Good, 1991; Surwit et al., 2002). However, a few contradictory findings have also been published before (Aikens, Kiolbasa, & Sobel, 1997; Jablon et al., 1997). This present study observed a slight improvement in fasting blood sugar in the intervention group as compared to the comparison group. However, the difference was not statistically significant ( $p=0.179$ ) and only obtained the effect size of 0.222. Cohen's  $d$  of 0.2 to 0.6 for differences in means are considered as small effects. Surwit et al (2002) in their study found that stress management was associated with a small but significant reduction of HbA1c in diabetic patients (Surwit et al., 2002).



Among all the biochemical indicators, only serum cortisol shows a significant reduction. Participants in the intervention group experienced a greater reduction of serum cortisol level as compared to participants in the comparison group. There are a few other studies that have demonstrated a reduction in serum or salivary cortisol after stress management programmes (Carlson L, Speca M, Patel K, & Goodey E, 2004; de Brouwer SJM et al., 2011; Nickel C, Tanca S, & Kolowos S, 2007). de Brouwer et al (2011) found that after the 9-week follow-up, the level of stress-induced tension and cortisol were significantly lower in the intervention group. Besides measurement of cortisol through serum, it can also be measured reliably through saliva and urine (Aardal & Holm, 1995).

### **5.3.2 Effects of EAP on self-perceived depression, anxiety and stress**

#### **5.3.2.1 Effects of EAP on self-perceived depression**

In this study, self-perceived depression was reduced in the intervention group with mean difference of 2.29 in the pre and post-intervention groups. The participants from the intervention group managed to reduce their depressive state to at least one level lower than before as compared to the comparison group. As for individual symptoms for depression, participants in the intervention group experienced less frequency of at least two depressive symptoms. According to some of the participants during the counselling session, the individual counselling contributed considerably to this reduction. Participants felt more relief after having a counsellor listening and advising them on their problems. According to the participants, half of their problems were relieved by expressing it to someone else.

Even though the counselling session was meant for workplace psychological exposure, some other issues like marital, financial and neighbourhood problems were also discussed. A few main depressive issues discussed during the sessions were low self-esteem, relationship issues and persistent negative thinking. The EAP counsellor tried to understand the trigger factors and help the participants to manage the condition. However, counselling alone is only effective in managing mild to moderate depression. For severe depression, a combination of counselling and pharmacotherapy might be needed. In this case, the EAP counsellor will refer the participant to a psychiatrist.

The counselling process or techniques itself has to be effective to ensure the recovery process has taken place. Among the first thing an EAP counsellor will do with the participant is develop a trusting relationship between counsellor and participant. The counsellor aims to make sure that the participant feels accepted and understood by listening carefully to their concerns and not judging them in any way. The counselling session also did not focus on depressive symptoms alone. The counsellor saw the participants as a whole person and is empathic. Counselling sessions play an important role in developing a trusting and understanding therapeutic relationship. This is because it is believed to be the starting point for helping participants, and without this trusting relationship, change is unlikely to happen.

Other than that, participants were advocated to regularly practice physical exercise as this might help them to combat depressive symptoms. General healthy lifestyle advice was given as part of EAP counselling. Advice given was based on their body mass index, cholesterol level and blood pressure. A study had shown that depression was significantly associated with physical inactivity, smoking and an unhealthy diet (Bonnet et al., 2005). Some participants claimed that they had started consuming a healthy diet

and taking time out for fun and relaxation, and this may work together in the prevention of a depressed mood.

Similar results were shown by Minoy et al (2006) in 54 workers where self-perceived depression was reduced significantly after three months of intervention. The intervention was a stress-management programme based on the cognitive behavioural approach at the workplace. However, Timothy et al suggested that worksite health promotion programmes such as EAP played a limited or minimal role in improving work related mental health outcomes (stress, anger and depression) (Timothy, Michael, & George, 2001).

Another contradictory result was also found in a study among 133 university students (Vazquez et al., 2012). The study found no significant improvement in depression symptoms after the six-month intervention period. However, the intervention only involved either relaxation training or cognitive-behavioural therapy.

In this study, self-perceived depression showed the largest magnitude of effect size with Cohen's  $d$  of 0.863. This indicates that the mean of the intervention group is at the 80<sup>th</sup> percentile of the comparison group.

#### 5.3.2.2 Effects of EAP on self-perceived anxiety

The anxiety symptoms score was reduced significantly in this study after the intervention. During the counselling, most participants claimed that the anxiety symptoms that mostly improved were related to 'close to panic' and 'feeling scared without any good reason'. The skills of deep breathing, musical therapy and progressive muscle relaxation may have helped in reducing these symptoms. Some of the

participants claim that they listened to the soothing music while applying deep breathing while working. These helped them to control their emotions while busy at work. Progressive muscle relaxation was mostly applied during break hours and before starting work. Progressive muscle relaxation is known as an important non-pharmacological treatment for anxiety disorder.

Participants were also taught the imagery therapy which they could apply when faced with a fearful condition. We found that the effect size for self-perceived anxiety was 0.712. This was a moderate to large effects with mean of the intervention group at the 76<sup>th</sup> percentile of the comparison group. This result was slightly bigger than the study by Zalta (2011) where she revealed small to moderate effects in the reduction of general anxiety, anxiety disorder symptoms, and depression symptoms after the intervention. These effect sizes were relatively substantial as compared to the small to moderate effect sizes observed in the latter study for anxiety disorders. This preventive effect may have a large clinical and economic impact because of the cascading effects of illness.

#### 5.3.2.3 Effects of EAP on self-perceived stress

Occupational stress has become an important entity to be tackled by healthcare providers as it is taking its toll on human lives and organisational effectiveness. From this study, we found that EAP for Stress is one of the effective programmes that can have positive impact on workers' health especially on psychological symptoms (depression, anxiety and stress). Stress symptoms improvement was significantly reduced from moderate to mild after the intervention. These changes, even though subtle, will have a big impact on the individual and organisation. The effects size of the intervention for stress symptoms was 0.818. According to Cohen (1988) (J. Cohen,

1988), this effect was considered as large and indicates that the mean stress symptom of the intervention group was at the 79<sup>th</sup> percentile of the the comparison group.

The stress symptoms that appear to be reduced most were ‘tended to over-react to situations’ and ‘found myself getting agitated’. Application of relaxation therapy, time management and self-assertiveness were reported to be the key intervention for this stress reduction. Most of the participants claimed that they were applying these techniques in their daily working life. Our results on stress symptoms reduction was concurrent with two studies (M. C. Jones & Johnston, 2000; Lee & Crockett, 1994), where they found person-directed intervention reduced stress significantly when compared to no intervention (95% CI -1.21 to -0.49). However, these two studies used different scales to measure the stress levels, namely Beck and Srivastava Stress Inventory and Perceived Stress Scale respectively. The DASS-21 questionnaire that was used for this study is a valid questionnaire and can be used in a clinical setting to estimate treatment and intervention outcome (Ng et al., 2007).

### **5.3.3 Effects of EAP on work psychological exposure and job strain**

The intervention in this study was targeted at the individual level. Thus, some of the outcome that involves work environment and organisational decision might not give any positive impact. Even some studies on the intervention at the organisational level failed to improve work psychological exposure. Elo et al (2008) reported in their study that an organisational stress management programme failed to significantly improve psychosocial work environment (Elo, Ervasti, Kuosma, & Mattila, 2008).

Nevertheless, this present study shows that EAP intervention managed to reduce some of the work psychological exposure namely high job demand and low co-worker

support. This improvement might probably be due to our individual counselling. Based on the EAP counselling module; self-assertive technique, good time management and good communication skills might be the contribution factors towards these changes. Job demand score was reduced by 2.07 points in the intervention group and increased by 0.61 point in the comparison group, which gives the difference of 2.68 points. The range of job demands scores among all participants were from 21 to 46 points with median score of 33 as a cut off point for high and low job demand. The majority of participants (47.2%) have the baseline job demand score of between 30 to 34 points. Thus, the difference of 2.68 even though subtle can give a substantial impact on reduction of high job demand category and furthermore, the high job strain category.

The increment of co-worker support score by 0.49 also shows a significant difference due to its smaller range of scores. The range score of co-worker support among all participants was 7 to 16 with median score of 12 as the cut-off point. The distribution of 70% of the participants concentrated at a score from 10 to 12. This smaller score difference of 0.49 would contribute a reasonable improvement in this smaller range of score concentration.

Significantly lower job skill discretion score was also observed in the intervention group after the EAP intervention. This is the unfavourable effect as low job skill discretion is one of the work psychological exposure characteristic. The reduction by 1.35 points in the intervention group and increment by 0.80 points in the comparison group was observed after the intervention. These give a total 2.15 point of inter group mean difference ( $p=0.005$ ). However, after we combined job skill discretion and decision making authority for job decision latitude, the changes were not significant.

All the other work psychological characteristics namely decision-making authority, supervisor support, job insecurity and decision latitude did not show a significant difference after the intervention. Decision-making authority and decision latitude tends to be stagnant if the workers did not have any promotion at the time or given any new responsibility with authority to the particular task. In contrast with a systematic review reported by Aust and Ducki (2004), a comprehensive health promotion programme targeting psychosocial factors managed to improve decision authority, social support and work circumstances. The comprehensive health promotion programme or called 'The German Health Circle' is a discussion group involving workers at the workplace to develop and change options for the improvement of potentially harmful working conditions (Aust & Ducki, 2004). This indirectly increases workers' job control and decision latitude.

As a government servant, their low job insecurity level would also be the same. As for supervisor support, both groups show some improvement after the intervention even though the changes were not significant. However, after the variable was categorised into high and low supervisor support based on the median value of 10.5 as a cut-off point, supervisor support shows significant changes with odds ratio of 3.296 ( $p = 0.013$ ). As a comprehensive programme, permission from the supervisor was granted and a time slip was provided every time participants attended the EAP counselling sessions. Indirectly, perceived support from supervisor is increased.

Decision latitude is a summation of job skill discretion and decision-making authority. Even though there were changes in job skill discretion, decision latitude characteristic remains the same ( $p = 0.396$ ). This might be because there was no change in decision-making authority after the intervention.

Overall, EAP might give small effects on work psychological exposure and types of exposure improved were only those closely related to individual behaviour but not organisational behaviour. Thus, it is important for organisations to implement a comprehensive programme besides EAP to tackle organisational stressors.

Organisational intervention usually explores the interactions between the workplace and strains regardless of the personal variations of workers. The factors like job demand and control might interact and affect health. Organisational involvement to improve work environment and job design are required in this situation.

Personal intervention focuses on the cognitive processes and emotional reactions towards work and the workplace. Different people might conceptualise the stressors differently. A stressor to one person might be motivation to another. Furthermore, their stress threshold is different from each other. Therefore, outcome from a combination of individual and organisational intervention will perhaps give a more substantial effect on workers and the organisation.

#### **5.3.4 Effects of EAP on sickness absence**

The economic impact on psychological problems is substantial. This is reflected by the data on absenteeism. Evidence show that job stress was positively related to absenteeism (Jamal, 2007). However, our baseline finding reported that sickness absence (period of six months before and six months after the measurement taken) was not correlated with self-perceived depression, anxiety and stress. A cluster randomised-controlled trial among adjustment disorder patients demonstrate that counselling sessions with an occupational physician was effective in reduction of sickness absence duration especially long-term absence (J.J.L. van der Klink et al., 2003).



In this present study, the reduction of sickness absence days after the intervention in the intervention group was not statistically significant and similar results were also shown in other studies (Brouwers, Tiemens, Terluin, & Verhaak, 2006; Ingrid & Bengt, 2005). Brouwers et al (2006) in their experimental study that focused on understanding the cause of stress, problem solving strategies and promotion of early return to work failed to demonstrate positive results on sickness absence days. Their sickness absence outcome was measured at three, six and 18 months after commencement of 10 weeks of the intervention period. Longer study duration might be needed to obtain positive results in sickness absence. Aust and Ducki (2004), in their systematic review of comprehensive psychosocial health promotion in Germany, revealed that five out of 11 studies reported the reduction of sickness absence after the intervention, while one study increased in rate, one study remained the same and the others did not actually evaluate sickness absence as their outcome (Aust & Ducki, 2004). However, in a British EAPs study, Berridge et al (1997) reported that counselling service by itself may benefit individuals psychologically, but would be unlikely to bring a reduction in sickness absence.

The organisational component of the business model of EAP is usually concentrated on three different values: reduction of absenteeism (the cost of avoided unscheduled time off from work), improvement in productivity (the costs of less-than-full effort while on the job), and reduced or avoided turnover (costs to replace an employee) (Attridge et al., 2003). Furthermore, if the problems not properly dealt with, reduction of sickness absenteeism can give rise to sickness presenteeism which similarly will reduce productivity (Koopmanschap et al., 2005).

## **5.4 Limitations and strengths of study**

### **5.4.1 Limitations of study**

This study was performed to the highest possible standards; yet, we still might face some risk of bias. Due to the nature of this intervention, it was impractical or impossible to blind participants in the intervention and comparison groups. The investigator, who also acts as the intervention provider, was aware which group the participants were allocated. It is inappropriately judgemental to describe this study as of ‘low quality’, but that does not mean we were free of performance bias. However, in this study, the outcome assessors were blinded. This will reduce the risk of detection bias. The intended blinding of outcome assessors in this study were also effective. The outcome measurements were done at the same time for all participants regardless of their group by UM Wellness team members and blood investigations were sent to an independent lab.

JCQ and DASS-21 questionnaires that were used for baseline and outcome measurement of psychological symptoms and work psychological exposure were considered as subjective measurements. Participants in intervention group might rate themselves better due to extra attention given to them. Several efforts were taken to control for this effect. Participants were clearly explained that this psychological outcome was totally self-perceived. It is based on their own experience. Beside than that, they were reminded that all the personal result is confidential and it will not affect their job performance report. Validation, reliability and the Malay Language translation of JCQ and DASS-21 questionnaires were published elsewhere. They are considered as valid and reliable tools in measurement of work psychological exposure and self-perceived depression, anxiety and stress symptoms. We also managed to measure serum

cortisol levels objectively as a possible stress biomarker; however, we found that there was no significant correlation between serum cortisol and psychological symptoms measured via DASS-21. Other tools of measurement available were salivary immunoglobulin G (IgG) and cortisol.

Possible contamination of information was also tackled by maintaining the confidentiality of those who participated in this study. Participants in the comparison group will not know who was recruited and allocated in the intervention group. The large and multicentre workplace environment also reduced the possibility of participants interacting with each other. However, in future, this risk of information contamination can further be reduced by conducting a multicentre cluster trial.

Participants diagnosed with psychiatric problems were excluded from the study as the medication prescribed may have interfered with the outcome evaluation. However, a study reported that clients with major depressive disorders had significantly greater number of service hours and less improvement after EAP intervention (Arzu et al., 2006). The result might be overestimated due to the exclusion of these participants. However, only a small number of participants (4.5%) were reported to have psychiatric illness and was excluded from this study. Another limitation was the intervention period being too short to show significant changes in the organisational outcome like sickness absence. A study showed that duration of absence due to psychological problems are usually longer than other physical illnesses (Stephen et al., 1995).

Besides sickness absence rate, the other necessary organisational impacts were not included. The objective to examine medical cost claim effects was removed from this study due to some technical problems in accessing the data. Further research on cost-

benefit analysis would be much beneficial since evidence is still scarce. Furthermore, the actual work performance in terms of productivity should also be studied.

#### **5.4.2 Strengths of study**

Despite the limitations discussed earlier, this study has its own strength. The quality of evidence presented in this study was considered as high quality due to its methodological design. This study was approved by an ethical committee, sample size was calculated based on previous meta-analysis finding and results were reported systematically according to CONSORT guidelines. Risk of selection bias also was managed by the application of random sequence generation and allocation concealment. Results from the meta-analysis study showed that most studies were mainly based on psychological outcome variables, as compared to physiological or organisational measures (Poh et al., 2010). As for this study, we had, in addition, examined the outcome comprehensively based on psychological, physical, biochemical and organisational measures.

We managed to measure all the outcome data in both groups and intention-to-treat analysis was used in this study. The follow-up rate was 100% with no drop-outs and withdrawals. This will reduce or avoid the risk of attrition bias. All the outcome measures were reported even though with negative finding. There was no reporting bias in the study.

Interventions were delivered by an experienced EAP specialist and an occupational health doctor. They were more focused on work-related issues, sickness absenteeism, return to work and were more comfortable in discussing those issues. Based on Quality Assessment Components and Ratings for EPHPP Instrument (Rampal et al., 2008), this

study was rated strongly due to its strong RCT design, >80% follow-up rate and usage of valid and reliable tools.

Based on the criteria for EAP evaluation study mentioned in the literature review, this study had complied with at least six out of nine criteria listed. This study is a true experimental research design, with the use of adequate control groups, random assignment of employees to different intervention group, collection of standardised data that allow comparison, measurement of work performance based on sickness absence rate and inclusion of employees who use other kinds of health preventive services.

# **CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS**

## **6.1 Conclusion**

### **6.1.1 Baseline descriptive findings**

Proportion of high job strain among participants was 21.5%. Based on this, public universities can be considered to have roughly similar proportion of high job strain as compared to workers in other industries. However, compared with other public universities in Malaysia, UM workers were considered as having a lower percentage of high job strain (low decision latitude and high job demand) especially among academicians. Nevertheless, academicians had the highest proportion of active job (high decision latitude and high job demand) as compared with other occupational class in our study.

There was no difference in job security regardless of their employment status. Participants also had high percentage of social support which included high co-workers support and high supervisor support. Baseline self-perceived depression, anxiety and stress was 38.7%, 74.7% and 58.7% respectively. Baseline sickness absence was higher than other occupational groups.

### **6.1.2 Effectiveness of the EAP intervention**

After the Employee Assistance Programme intervention, there was improvement in psychological symptoms. EAP was an effective programme to reduce self-perceived depression, anxiety and stress. These self-perceived psychological symptoms were

reduced through the knowledge of stress management given during the workshop, individual counseling and practising the methods of stress management therapies taught. Among all the psychological symptoms, largest improvement in term of effect size ( $d$ ) were observed in self-perceived depression (0.863), followed by stress (0.818) and anxiety (0.712).

Serum cortisol was also significantly reduced after the intervention. However, other physical indicators such as body mass index, waist circumference, blood pressure, fasting blood glucose, total cholesterol, HDL-Cholesterol, LDL-Cholesterol and triglyceride did not significantly improved. Organisational indicator which was sickness absence, also did not show significant changes. A longer period of time might be needed in order to observe an improvement.

In occupational health practice, subtle improvement of self-perceived psychological symptoms among workers will have substantial impact on workers' motivation and productivity. However, the reduction in serum cortisol level might not have large psychological effects due to its wide range of normal value and variation among individuals.

Workplace psychological exposures were important indicators for the development of stressful job. Work psychological exposure might need an organisational-approached intervention in order to observe an improvement. Nevertheless, this individual-approached intervention managed to improve some of the work psychological exposure namely high job demand and low co-workers support.

## **6.2 Recommendations**

The Employee Assistance Programme basically concentrated on mental health issues at the workplace. It's a comprehensive and one-stop programme for problems regarding mental health that originated especially from the workplace. Based on our findings on the effectiveness of EAP, an in-house EAP management for universities should be established and this will empower of participants to manage the existing programme. Medical personnel, psychologists and counselors in the university should be trained on stress management and EAP counseling. They will better understand organisational functions as they are part of the university. All level of staff should be involved and this will increase the sense of ownership of the programme. The participants are encouraged to maintain their good mental health behavior and practice the stress relaxation therapies they were taught.

As for the continuity of this program, regular stress screening and talks on stress management should be conducted. It will be better if we could measure the outcomes at three, six or 12 months post-intervention in order to observe the consistency of psychological health improvement. Maintaining behaviour over time is the most challenging task in the success of a workplace health programme (Riedel, Lynch, Baase, Hymel, & Peterson, 2001). Participants in intervention group are expected to maintain their psychological health if they could continue practising proper stress management techniques and stress relaxation therapy taught. However, during the intervention period, their good compliance rate was probably supported by adequate reminder given to them. Therefore, it is recommended for this programme to be maintained and make accessible to all staff at all time.



Based on our risk assessment on psychological work exposure, multiple types of control measures should be applied to reduce a stressful work environment. In order to reduce the percentage of high job strain, social support especially from supervisors should be improved. Administrative control on number of personnel, work delegation and self-assertive behavior can be practiced to reduce job demand and increase efficiency. Other than that, a healthy and supportive environment for mental health should be established at the workplace. Provision of a quality work environment should include adequate attention on health and safety, employee involvement and participation, empowerment, performance recognition and morale. A healthy and safe environment involves a work station with adequate space, ventilation and control of hazardous material. Recreational areas and time to do recreational activities can act as a platform to improve the relationship between workers with other co-workers and supervisors.

Involvement of spouse or family members in the mental health promotional activities will create an enabling environment even at home. Family members are encouraged to co-operate with each other to manage stress and avoid being a stressor to other family members. Each of them should be taught stress management and this should suit their age and needs. Employees' empowerment of their physical well-being is vital to ensure the workforce is more resilient to the adverse effects of occupational stress.

Similar studies with a longer period time of at least three years should be conducted to confirm the findings on physical indicators and sickness absence. Evidence of long-term benefit on perceived improvement of psychological symptoms and their impact at the organisational level should be investigated. Other than that, studies on other worksite environment would also be beneficial. Furthermore, future study on the effectiveness of mental health programmes targeted at the organisational level is recommended in order

to observe better improvement on organisational stressors and work psychological exposure.

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## Appendix A: Deep breathing exercise instruction

1.	Lie down or sit in a comfortable chair, maintaining good posture. Your body should be as relaxed as possible. Close your eyes. Scan your body for tension.
2.	Pay attention to your breathing. Place one hand on the part of your chest or abdomen that seems to rise and fall the most with each breath. If this spot is in your chest you are not utilizing the lower part of your lungs.
3.	Place both hands on your abdomen and follow your breathing, noticing how your abdomen rises and falls.
4.	Breathe through your nose.
5.	Notice if your chest is moving in harmony with your abdomen.
6.	Now place one hand on your abdomen and one on your chest.
7.	Inhale deeply and slowly through your nose into your abdomen. You should feel your abdomen rise with this inhalation and your chest should move only a little.
8.	Exhale through your mouth, keeping your mouth, tongue, and jaw relaxed.
9.	Relax as you focus on the sound and feeling of long, slow, deep breaths.

## Appendix B: Progressive Muscle Relaxation

### instruction

1.	Make sure you are in a setting that is quiet and comfortable. Observe the guidelines for practicing relaxation that were previously described.
2.	When you tense a particular muscle group, do so vigorously without straining, for 7-10 seconds. You may want to count "one-thousand-one," "one-thousand-two," and so on, as a way of marking off seconds.
3.	Concentrate on what is happening. Feel the buildup of tension in each particular muscle group. It is often helpful to visualize the particular muscle group being tensed.
4.	When you release the muscles, do so abruptly, and then relax, enjoying the sudden feeling of limpness. Allow the relaxation to develop for at least 15-20 seconds before going on to the next group of muscles.
5.	Allow all the other muscles in your body to remain relaxed, as far as possible, while working on a particular muscle group.
6.	Tense and relax each muscle group once. But if a particular area feels especially tight, you can tense and relax it two or three times, waiting about 20 seconds between each cycle.
7.	To begin, take three deep abdominal breaths, exhaling slowly each time. As you exhale, imagine that tension throughout your body begins to flow away.
8.	Clench your fists. Hold for 7-10 seconds and then release for 15-20 seconds. Use these same time intervals for all other muscle groups.
9.	Tighten your biceps by drawing your forearms up toward your shoulders and "making a muscle" with both arms. Hold and then relax.



10.	Tighten your triceps--the muscles on the undersides of your upper arms--by extending your arms out straight and locking your elbows. Hold and then relax.
11.	Tense the muscles in your forehead by raising your eyebrows as far as you can. Hold and then relax. Imagine your forehead muscles becoming smooth and limp as they relax.
12.	Tense the muscles around your eyes by clenching your eyelids tightly shut. Hold and then relax. Imagine sensations of deep relaxation spreading all around them.
13.	Tighten your jaws by opening your mouth so widely that you stretch the muscles around the hinges of your jaw. Hold and then relax. Let your lips part and allow your jaw to hang loose.
14.	Tighten the muscles in the back of your neck by pulling your head way back; as if you were going to touch your head to your back (be gentle with this muscle group to avoid injury). Focus only on tensing the muscles in your neck. Hold and then relax. Since this area is often especially tight, it's good to do the tense-relax cycle twice.
15.	Take a few deep breaths and tune in to the weight of your head sinking into whatever surface it is resting on.
16.	Tighten your shoulders by raising them up as you were going to touch your ears. Hold and then relax.
17.	Tighten the muscles around your shoulder blades by pushing your shoulder blades back as if you were going to touch them together. Hold the tension in your shoulder blades and then relax. Since this area is often especially tense, you might repeat the tense-relax sequence twice.
18.	Tighten the muscles of your chest by taking in a deep breath. Hold for up to 10



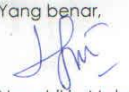


	seconds and then release slowly. Imagine any excess tension in your chest flowing away with the exhalation.
19.	Tighten your stomach muscles by sucking your stomach in. Hold and then release. Imagine a wave of relaxation spreading through your abdomen.
20.	Tighten your lower back by arching it up. (You should omit this exercise if you have lower back pain.) Hold and then relax.
21.	Tighten your buttocks by pulling them together. Hold and then relax. Imagine the muscles in your hips going loose and limp.
22.	Squeeze the muscles in your thighs all the way down to your knees. You will probably have to tighten your hips along with your thighs, since the thigh muscles attach at the pelvis. Hold and then relax. Feel your thigh muscles smoothing out and relaxing completely.
23.	Tighten your calf muscles by pulling your toes toward you (flex carefully to avoid cramps). Hold and then relax.
24.	Tighten your feet by curling your toes downward. Hold and then relax.
25.	Mentally scan your body for any residual tension. If a particular area remains tense, repeat one or two tense-relax cycles for that group of muscles.
26.	Now imagine a wave of relaxation slowly spreading throughout your body, starting at your head and gradually penetrating every muscle group all the way down to your toes.

## Appendix C: Map of UM Campus



- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>1 UM Main Entrance</li> <li>2 PJ Entrance</li> <li>1 Faculty of Dentistry</li> <li>2 University Malaya Medical Centre (UMMC)</li> <li>3 Faculty of Medicine</li> <li>4 Faculty of Built Environment</li> <li>5 Faculty of Engineering</li> <li>6 Faculty of Business and Accountancy</li> <li>7 Faculty of Economics and Administration</li> <li>8 Faculty of Education</li> <li>9 Faculty of Arts and Social Sciences</li> <li>10 Faculty of Languages and Linguistics</li> <li>11 Faculty of Science</li> <li>12 Academy of Malay Studies</li> <li>13 Faculty of Computer Science &amp; Information Technology</li> </ul> | <ul style="list-style-type: none"> <li>14 Academy of Islamic Studies</li> <li>15 Rimba Ilmu</li> <li>16 Institute of Graduate Studies</li> <li>17 Centre for Foundation Studies in Science</li> <li>18 Faculty of Law</li> <li>1 Library</li> <li>2 Dewan Tunku Chancellor (DTC)</li> <li>3 Chancellery / Administration</li> <li>4 Examination Building</li> <li>5 University Guest House</li> <li>1 Museum of Asian Art</li> <li>2 <b>Perdanasiswa &amp; Cultural Centre (Place for data collection and delivery of intervention)</b></li> <li>3 Asia-Europe Institute (AEI)</li> <li>4 Sports Centre</li> </ul> | <ul style="list-style-type: none"> <li>1 9th College</li> <li>2 3rd College</li> <li>3 4th College</li> <li>4 7th College</li> <li>5 8th College</li> <li>6 10th College</li> <li>7 5th College</li> <li>8 11th College</li> <li>9 12th College</li> <li>10 1st College</li> <li>11 2nd College</li> <li>12 6th College</li> </ul> |
|--|--|--|

## Appendix D: Ethics approval letter

 <b>UNIVERSITI MALAYA</b> KUALA LUMPUR <b>PUSAT PERUBATAN UM</b>	
No. Rujukan:-HU-61/12/1-1	
<p>28 Rabiulakhir 1430H 24 April 2009</p>	
<p><b>Dr. Marzuki Bin Isahak</b> Jabatan Perubatan Kemasyarakatan &amp; Pencegahan Pusat Perubatan Universiti Malaysia</p>	
<p>Puan,</p>	
<p><b>SURAT PEMAKLUMAN KEPUTUSAN PERMOHONAN MENJALANKAN PROJEK PENYELIDIKAN</b> Employee Assistance Program (EAP) For Occupational Stress: An Intervention Study Of Personal And Organizational Outcome In Public University</p>	
<p><b>Protocol No:</b> <b>MEC Ref. No: 714.16</b></p>	
<p>Dengan hormatnya saya merujuk kepada perkara di atas.</p>	
<p>Bersama-sama ini dilampirkan surat pemakluman keputusan Jawatankuasa Etika Perubatan yang bermesyuarat pada 22 April 2009 untuk makluman dan tindakan puan selanjutnya.</p>	
<p>Sekian, terima kasih.</p>	
<p>Yang benar,</p>	
<p> Norashikin Mahmood Setiausaha Jawatankuasa Etika Perubatan Pusat Perubatan Universiti Malaysia</p>	
<p>s.k      Ketua Jabatan Perubatan Kemasyarakatan &amp; Pencegahan</p>	
<hr/>	
<p><b>Jawatankuasa Etika Perubatan</b> <b>PUSAT PERUBATAN UNIVERSITI MALAYA</b> (University Malaya Medical Centre) LEMBAH PANTAI, 59100 KUALA LUMPUR, MALAYSIA Telefon: : 603-79494422           : samb. 3209(pejabat am)           : 603-79545862 No.Faxs : www.ummc.edu.my Laman Web : inorashikin@ummc.edu.my E-mail : zanie@ummc.edu.my</p>	<div style="display: flex; justify-content: space-around;"><div> ISO 9001:2000</div><div> REG. NO AR 2597</div><div> GOLD</div></div>



**UNIVERSITI  
MALAYA**  
KUALA LUMPUR  
**PUSAT PERUBATAN UM**

**JAWATANKUASA ETIKA PERUBATAN  
PUSAT PERUBATAN UNIVERSITI MALAYA**

ALAMAT: LEMBAH PANTAI, 59100 KUALA LUMPUR, MALAYSIA  
TELEFON: 03-79494422 samb. 3209 FAKSIMILI: 03-79494638

<b>NAME OF ETHICS COMMITTEE/IRB:</b> Medical Ethics Committee, University Malaya Medical Centre	<b>ETHICS COMMITTEE/IRB REFERENCE NUMBER:</b>  714.16
<b>ADDRESS:</b> LEMBAH PANTAI 59100 KUALA LUMPUR	
<b>PROTOCOL NO:</b> .	
<b>TITLE:</b> Employee Assistance Program (EAP) For Occupational Stress: An Intervention Study Of Personal And Organizational Outcome In Public University	
<b>PRINCIPAL INVESTIGATOR:</b> Dr. Marzuki Bin Isahak	<b>SPONSOR:</b>
<b>TELEPHONE:</b> <b>KOMTEL:</b>	

The following item ☒ have been received and reviewed in connection with the above study to be conducted by the above investigator.

- ☒ Borang Permohonan Penyelidikan
- ☒ Study Protocol
- ☐ Investigator's Brochure
- ☒ Patient Information Sheet
- ☒ Consent Form
- ☒ Questionnaire
- ☒ Investigator(s) CV's (Dr. Marzuki Bin Isahak)

Ver date: 2 Apr 09

Ver date:

Ver date:

Ver date:

Ver date:

and have been ☒

☒ Approved

☐ Conditionally approved (identify item and specify modification below or in accompanying letter)

☐ Rejected (identify item and specify reasons below or in accompanying letter)

Comments:

- i. Investigator is required to follow instructions, guidelines and requirements of the Medical Ethics Committee.
- ii. Investigator is required to report any protocol deviations/violations through the Clinical Investigation Centre and provide annual/closure reports to the Medical Ethics Committee.

Date of approval: 22<sup>th</sup> APRIL 2009

s.k. Ketua  
Jabatan Perubatan Kemasyarakatan & Pencegahan

Timbalan Dekan (Penyelidikan)  
Fakulti Perubatan, Universiti Malaya

Setiausaha  
Jawatankuasa Penyelidikan Pusat Perubatan  
Fakulti Perubatan, Universiti Malaya

**PROF. LOOI LAI MENG**  
Chairman  
Medical Ethics Committee



**UNIVERSITI  
MALAYA**  
KUALA LUMPUR  
**PUSAT PERUBATAN UM**

**JAWATANKUASA ETIKA PERUBATAN  
PUSAT PERUBATAN UNIVERSITI MALAYA**

ALAMAT: LEMBAH PANTAI, 59100 KUALA LUMPUR, MALAYSIA  
TELEFON: 03-79494422 samb. 3209 FAKSIMILI: 03-79494638

<b>NAME OF ETHICS COMMITTEE/IRB:</b> Medical Ethics Committee, University Malaya Medical Centre	<b>ETHICS COMMITTEE/IRB REFERENCE NUMBER:</b>  714.16
<b>ADDRESS:</b> LEMBAH PANTAI 59100 KUALA LUMPUR	
<b>PROTOCOL NO.:</b>	
<b>TITLE:</b> Employee Assistance Program (EAP) For Occupational Stress: An Intervention Study Of Personal And Organizational Outcome In Public University	
<b>PRINCIPAL INVESTIGATOR:</b> Dr. Marzuki Bin Isahak	<b>SPONSOR:</b>
<b>TELEPHONE:</b>	<b>KOMTEL:</b>

The following item ☒ have been received and reviewed in connection with the above study to be conducted by the above investigator.

- |   |                    |
|---|--------------------|
| <input checked="" type="checkbox"/> Borang Permohonan Penyelidikan                | Ver date: 2 Apr 09 |
| <input checked="" type="checkbox"/> Study Protocol                                | Ver date:          |
| <input type="checkbox"/> Investigator's Brochure                                  | Ver date:          |
| <input checked="" type="checkbox"/> Patient Information Sheet                     | Ver date:          |
| <input checked="" type="checkbox"/> Consent Form                                  | Ver date:          |
| <input checked="" type="checkbox"/> Questionnaire                                 | Ver date:          |
| <input checked="" type="checkbox"/> Investigator(s) CV's (Dr. Marzuki Bin Isahak) |                    |

and have been ☒

- ☒ Approved  
☐ Conditionally approved (identify item and specify modification below or in accompanying letter)  
☐ Rejected (identify item and specify reasons below or in accompanying letter)

Comments:

- i. *Investigator is required to follow instructions, guidelines and requirements of the Medical Ethics Committee.*
- ii. *Investigator is required to report any protocol deviations/violations through the Clinical Investigation Centre and provide annual/closure reports to the Medical Ethics Committee.*

Date of approval: 22<sup>th</sup> APRIL 2009

s.k. Ketua  
Jabatan Perubatan Kemasyarakatan & Pencegahan

Timbalan Dekan (Penyelidikan)  
Fakulti Perubatan, Universiti Malaya

Setiausaha  
Jawatankuasa Penyelidikan Pusat Perubatan  
Fakulti Perubatan, Universiti Malaya

**PROF. LOOI LAI MENG**  
Chairman  
Medical Ethics Committee



# Appendix E: Consent form and Patient Information Sheet

## Consent Form (English Language)

I, ....., Identity Card No..... <i>(Name of Participant)</i> of .....	
Telephone: ..... <i>(Office address and office tel. no)</i>	
hereby agree to take part in the clinical research specified below:	
<u>Title of Study:</u> Employee Assistance Programme (EAP) for Stress at Workplace: An intervention study of personal and organizational outcome in public university.	
The nature and purpose of which has been explained to me by Dr. Marzuki Bin Isahak <i>(Name &amp; Designation of Doctor)</i>	
and interpreted by ..... <i>(Name &amp; Designation of Interpreter)</i>	
to the best of his/her ability in ..... language.	
I have been told about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as per patient information sheet). After knowing and understanding all the possible advantages and disadvantages of this clinical research, I voluntarily consent of my own free will to participate in the clinical research specified above.	
I understand that I can withdraw from this clinical research at any time without assigning any reason whatsoever and in such a situation shall not be denied the benefits of usual treatment by the attending doctors.	
Date: .....	Signature or Thumbprint ..... <i>(Participant)</i>
IN THE PRESENCE OF <i>(Witness for Signature of Participant)</i>	
Nam.....	
Identity Card No. ....	
Signature .....	
Designation .....	
I confirm that I have explained to the patient the nature and purpose of the above-mentioned clinical research.	
Date .....	Signature: ..... <i>(Attending Doctor)</i>

## Consent Form (Malay Language)

Saya,..... (Nama Peserta)

No. Kad Pengenalan .....

beralamat.....

No. telefon pejabat:.....

(Alamat tempat kerja **dan** no. telefon pejabat)

dengan ini bersetuju menyertai dalam penyelidikan klinikal disebut berikut:

Tajuk Penyelidikan: *Employee Assistance Program (EAP) untuk Stres di tempat kerja: Kajian intervensi untuk keberkesanan kepada diri dan organisasi di universiti awam.*

yang mana sifat dan tujuannya telah diterangkan kepada saya oleh Dr. Marzuki Bin Isahak (Nama & Jawatan Doktor)

mengikut terjemahan .....

(Nama & Jawatan Penterjemah)

yang telah menterjemahkan kepada saya dengan sepenuh kemampuan dan kebolehannya di dalam Bahasa .....

Saya telah diberitahu bahawa dasar penyelidikan klinikal dalam keadaan methodologi, risiko dan komplikasi (mengikut kertas maklumat peserta). Selepas mengetahui dan memahami semua kemungkinan kebaikan dan keburukan penyelidikan klinikal ini, saya merelakan/mengizinkan sendiri menyertai penyelidikan klinikal tersebut di atas.

Saya faham bahawa saya boleh menarik diri dari penyelidikan klinikal ini pada bila-bila masa tanpa memberi sebarang alasan dalam situasi ini dan tidak akan dikecualikan dari kemudahan rawatan dari doktor yang merawat.

Tarikh: .....

Tandatangan/Cap Jari: .....

(Peserta)

DI HADAPAN

Nama .....

No. K/P.....

Tandatangan: .....

(Saksi untuk Tandatangan Peserta)

Jawatan .....

Saya sahkan bahawa saya telah menerangkan kepada pesakit sifat dan tujuan penyelidikan klinikal tersebut di atas.

Tarikh: .....

Tandatangan: .....

(Doktor yang merawat)



## **Patient information sheet (English Language)**

### **PATIENT INFORMATION SHEET**

**Please read the following information carefully, do not hesitate to discuss any questions you may have with your Doctor.**

#### **Study Title**

Employee Assistance Programme (EAP) for Stress: An intervention study of personal and organizational outcome in public university

#### **Introduction**

Occupational stress has becoming an important entity to be tackled by Occupational Physician as its taking its toll on human lives and organizational effectiveness. University staff reported significantly higher levels of stress relating to work relationships, control, resources and communication and significantly lower level of commitment both from and to their organization. Physiological response to a threatening or difficult aspect of work and can be measured objectively with serum cortisol level. Employee Assistance Programme (EAP) is a worksite-based programme designed to assist work organizations in addressing productivity issues, and employee in identifying and resolving personal concerns, including, but not limited to, health, marital, family, financial, alcohol, drug, legal, emotional, stress, or other personal issues that may affect job performance.

#### **What is the purpose of this study?**

The purpose of this study is to determine the effectiveness of EAP for occupational stress in reduction of personal and organizational problems in public university. The personal outcome measures are stress level, fasting blood sugar and blood pressure. The organizational outcome measure is sickness absence rate.

#### **What are the procedures to be followed?**

Participants will need to answer questionnaires on socio-demographic data, baseline stress level (DASS questionnaires) and psychosocial hazards risk assessment (Job Content Questionnaires). Then a baseline of blood pressure will be taken. After that, blood taking will be done through vein in cubital fossa to check for fasting blood sugar and serum cortisol level. Participants will be divided into intervention and comparison groups where intervention of Employee Assistance Programme (EAP) will be given to the intervention group. The comparison group will be given a self-help material. EAP will consist of Stress Management Workshop, stress relaxation techniques application and two times of consultations (approximately 30 minutes) over a six months period. Post-intervention outcome measures will be taken for serum cortisol, fasting blood sugar and blood pressure, self-perceived stress questionnaire and job content questionnaire. Secondary data of sickness absence will be obtained from Human Resource Department of University Malaya pre- and post-intervention.

#### **Who should not enter the study?**

Staff with psychiatric illness.

#### **What will be benefits of the study:**

- (a) **to you as the subject?**

As a subject, you will know your health status in view of fasting blood glucose level, blood pressure and stress level via serum cortisol reading and questionnaires. All subjects will be given a self-help material on stress management and those in intervention group will be given an Employee Assistance Programme (EAP) that will further assist you in controlling your stress at work.

**(b) to the investigator?**

As an investigator, I will be able to know the effectiveness of EAP in view of health of the participants (control of stress, blood sugar and blood pressure) and organizational benefits (reduction in sickness absence). I also will be able to determine a relationship between stress and the other outcome measures.

**What are the possible drawbacks?**

None declared. All procedures and interventions offered safe and will give no harm to the subjects.

**Can I refuse to take part in the study?**

I can refuse or withdraw from this research at any time without assigning any reason whatsoever and in such a situation shall not be denied the benefits of usual treatment by the attending doctors.

**Who should I contact if I have additional questions during the course of the study?**

Doctor's Name: Dr Marzuki Isahak  
Tel: 012-3616714

## Patient information sheet (Malay Language)

### MAKLUMAT KEPADA SUBJEK

Sila baca maklumat di bawah dengan teliti. Sekiranya anda mempunyai sebarang kemusykilan, sila bertanya dengan doktor anda.

#### **Tajuk Kajian**

*Employee Assistance Programme (EAP)* untuk Stress di tempat kerja: Kajian intervensi untuk keberkesanan kepada diri and organisasi di Universiti Awam

#### **Pengenalan**

Tekanan di tempat kerja telah menjadi entiti penting yang perlu ditangani oleh Doktor Perubatan Pekerjaan kerana ia telah memberi impak yang besar kepada keberkesanan pekerja dan organisasi. Pekerja di universiti dilaporkan mempunyai tekanan kerja tinggi yang berkaitan dengan hubungan, kawalan, sumber dan komunikasi di tempat kerja. Mereka juga dilaporkan mempunyai komitmen yang rendah daripada dan kepada organisasi.

Respon fisiologi kepada aspek kerja yang sukar dan memberi tekanan boleh diukur secara objektif melalui paras kortisol di dalam darah. EAP adalah program di tempat kerja yang dibentuk bagi membantu organisasi untuk mengenalpasti isu-isu yang berkaitan dengan produktiviti pekerja. Pekerja juga boleh mengenal dan menyelesaikan masalah peribadi, termasuklah masalah perkahwinan, keluarga, kewangan, ketagihan dadah, perundangan, emosi, stress atau masalah peribadi lain yang boleh memberi kesan terhadap prestasi kerja.

#### **Apakah tujuan kajian ini dilakukan?**

Tujuan kajian ini dilakukan adalah untuk mengenalpasti keberkesanan EAP dalam mengurangkan masalah diri dan organisasi di universiti awam. Masalah diri yang dikaji adalah stress, kawalan gula dalam darah dan tekanan darah. Manakala bagi pihak organisasi pula, kadar cuti sakit akan diambil kira.

#### **Apakah prosedur yang perlu dipatuhi?**

Subjek perlu menjawab soalan yang berkaitan dengan sosio-demografi, kadar stress (DASS Questionnaire) dan hazard psikososial di tempat kerja (Job Content Questionnaire). Kemudian, bacaan permulaan tekanan darah akan diambil. Selepas itu, pengambilan darah akan dilakukan melalui saluran vena di bahagian pelipat siku untuk memeriksa kandungan gula dan kortisol di dalam darah. Subjek akan dibahagikan kepada dua kumpulan iaitu kumpulan intervensi dan kumpulan perbandingan dimana program EAP akan diimplementasikan dikalangan subjek di kumpulan intervensi. Kumpulan perbandingan akan diberikan bahan bacaan sendiri. EAP akan mengandungi program Bengkel Pengurusan Stress, aplikasi teknik melepaskan tekanan dan 2 sesi perundingan bersama Doktor Kesihatan Pekerjaan (selama 30 minit) setiap 3 bulan selama 6 bulan. Selepas 6 bulan, penunjuk kesan program seperti kandungan kortisol, kadar stress, hazard psikososial di tempat kerja, gula dalam darah dan tekanan darah akan diambil semula untuk perbandingan. Data berkaitan dengan cuti sakit akan diperolehi dari Bahagian Sumber Manusia, Universiti Malaya sebelum dan selepas kajian dijalankan.

#### **Siapa yang tidak patut menyertai kajian ini?**

Staf UM yang mempunyai penyakit psikiatri.

**Apakah faedah kajian ini:**

(b) kepada anda sebagai subjek?

Sebagai subjek anda akan mengetahui, status kesihatan anda seperti bacaan paras gula, tekanan darah dan tahap stress/tekanan melalui bacaan darah kortisol dan soalan DASS. Kesemua subjek akan diberi bahan bacaan sendiri mengenai pengurusan stress dan subjek kumpulan intervensi akan diberi Employee Assistance Program (EAP) yang akan membantu anda dalam menangani stress di tempat kerja.

(c) Kepada penyelidik?

Sebagai penyelidik, ia akan membantu saya untuk mengetahui keberkesanan EAP dalam konteks kesihatan subjek/peserta (pengawalan stres, bacaan paras gula dan tekanan darah) and faedah kepada organisasi (pengurangan kadar cuti sakit). Saya juga akan dapat mengetahui perkaitan di antara stres dan penunjuk kesan.

**Apakah kemungkinan kesan tidak baik?**

Tiada. Kesemua prosedur dan intervensi yang ditawarkan adalah selamat dan tidak akan memberi kesan buruk kepada subjek.

**Bolehkah saya tidak mahu terlibat dalam penyelidikan ini?**

Anda boleh tidak bersetuju atau menarik diri dari kajian ini pada bila-bila masa tanpa sebab dan di dalam apa jua keadaan anda tidak akan dinafikan dari mendapat rawatan yang sewajarnya oleh Pegawai Perubatan.

**Siapakah yang harus dihubungi jika saya mempunyai persoalan semasa penyelidikan ini dijalankan?**

Nama Doktor: Dr Marzuki Isahak ,  
Doktor Kesihatan Pekerjaan  
Telefon: 012-3616714

# Appendix F: Depression, Anxiety and Stress

## Questionnaire (DASS-21)



### STUDY ON STRESS MANAGEMENT AMONG STAFF IN UNIVERSITY OF MALAYA

Name: .....

Age: .....

Sex: ☐ Male ☐ Female

Faculty: .....

Occupation / Grade:...../.....

Employment type: ☐ Permanent ☐ Temporary ☐ Contract

Duration of service: ..... years

Marital status: ☐ Married ☐ Single

Education level: ☐ Primary ☐ Secondary ☐ Tertiary

Smoking status: ☐ Smoker ☐ Non-smoker ☐ Ex-smoker

Exercise: ☐ Adequate\* ☐ Not adequate ☐ Not at all

\* at least 3 times a week for 30 minutes each time.

Please read each statement and circle a number, 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

*The rating scale is as follows:*

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me a considerable degree, or a good part of time

3 Applied to me very much, or most of the time

1. I found it hard to wind down	0	1	2	3
2. I was aware of dryness of my mouth	0	1	2	3
3. I could not seem to experience any positive feeling at all	0	1	2	3
4. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5. I found it difficult to work up the initiative to do things	0	1	2	3
6 I tended to over-react to situations	0	1	2	3
7 I experienced trembling (e.g. in the hands)	0	1	2	3
8 I felt that I was using a lot of nervous energy	0	1	2	3
9 I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 I felt that I had nothing to look forward to	0	1	2	3
11 I found myself getting agitated	0	1	2	3
12 I found it difficult to relax	0	1	2	3
13 I felt down-hearted and blue	0	1	2	3
14 I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 I felt I was close to panic	0	1	2	3
16 I was unable to become enthusiastic about anything	0	1	2	3
17 I felt I was not worth much as a person	0	1	2	3
18 I felt that I was rather touchy	0	1	2	3
19 I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 I felt scared without any good reason	0	1	2	3
21 I felt that life was meaningless	0	1	2	3

Please return the study form to officer in-charge or kindly post to:

Sekreteriat UM Wellness, Jabatan Perubatan Kemasyarakatan dan Pencegahan, Fakulti Perubatan, Universiti Malaya.

## KAJIAN PENGURUSAN STRES DI KALANGAN PEKERJA

### UNIVERSITI MALAYA

Nama: .....

Umur: .....

Jantina: ☐ Lelaki ☐ Perempuan

Fakulti: .....

Pekerjaan / Gred:...../.....

Jenis pekerjaan: ☐ Tetap ☐ Sementara/ Sambilan ☐ Kontrak

Tempoh berkhidmat: ..... tahun

Tahap perkahwinan: ☐ Kahwin ☐ Bujang ☐ Berpisah/cerai

Tahap pendidikan: ☐ Rendah ☐ Menengah ☐ Universiti/kolej

Status merokok: ☐ Perokok ☐ Tidak merokok ☐ Bekas perokok

Senaman: ☐ Mencukupi\* ☐ Tidak cukup ☐ Tidak langsung

\* sekurang-kurangnya 3 kali seminggu dan 30 minit setiap kali senaman.

Sila baca setiap kenyataan dan bulatkan jawapan (skala markah 0,1,2,3) yang menggambarkan keadaan anda **SEMINGGU YANG LEPAS**. Tidak ada jawapan betul atau salah. JANGAN guna terlalu banyak masa untuk mana-mana kenyataan. Skala markah adalah seperti berikut:

0= Tidak pernah sama sekali 1= Jarang 2= Kerap 3= Sangat kerap

	Tidak Pernah	Jarang	Kerap	Sangat kerap
1. Saya rasa susah untuk bertenang	0	1	2	3
2. Saya sedar mulut saya rasa kering	0	1	2	3
3. Saya seolah-olah tidak dapat mengalami perasaan positif sama sekali	0	1	2	3
4. Saya mengalami kesukaran bernafas (contohnya: bernafas terlalu cepat, tercungap-cungap walaupun tidak melakukan aktiviti fizikal)	0	1	2	3
5. Saya rasa tidak bersemangat untuk	0	1	2	3

memulakan sesuatu keadaan				
6. Saya cenderung bertindak secara berlebihan kepada sesuatu keadaan	0	1	2	3
7. Saya pernah menggeletar (contohnya: tangan)	0	1	2	3
8. Saya rasa terlalu gelisah	0	1	2	3
9. Saya risau berlaku kadaan di mana saya panik dan berkelakuan bodoh	0	1	2	3
10. Saya rasa tidak ada apa yang saya harapkan (putus harapan)	0	1	2	3
11. Saya dapati saya mudah resah	0	1	2	3
12. Saya merasa saya sukar untuk relaks	0	1	2	3
13. Saya rasa muram dan sedih	0	1	2	3
14. Saya tidak boleh menerima apa jua yang menghalangi saya daripada meneruskan apa yang saya sedang lakukan	0	1	2	3
15. Saya rasa hampir panik	0	1	2	3
16. Saya tidak bersemangat langsung	0	1	2	3
17. Saya rasa diri saya tidak berharga	0	1	2	3
18. Saya mudah tersinggung	0	1	2	3
19. Walaupun saya tidak melakukan aktiviti fizikal, saya sedar akan debaran jantung saya (contohnya: degupan jantung lebih cepat)	0	1	2	3
20. Saya rasa takut tanpa sebab	0	1	2	3
21. Saya rasa hidup ini tidak beerti lagi	0	1	2	3



# Appendix G: Job Content Questionnaire (JCQ)



## STUDY ON STRESS MANAGEMENT AMONG STAFF IN UNIVERSITY OF MALAYA

Risk assessment on exposure to psychological hazard at workplace.

Name : .....

ID No: .....

Please circle the correct answer.

	strongly disagree	disagree	agree	strongly agree
1. My job requires that I learn new things	1	2	3	4
2. My job involves a lot of repetitive work	1	2	3	4
3. My job requires me to be creative	1	2	3	4
4. My job allows me to make a lot of decisions on my own	1	2	3	4
5. My job requires a high level of skill	1	2	3	4
6. On my job, I am given a lot of freedom to decide how I do my work	1	2	3	4
7. I get to do a variety of things on my job	1	2	3	4
8. I have a lot to say about what happens on my job	1	2	3	4
9. I have an opportunity to develop my own special abilities	1	2	3	4
10. My job requires working very fast	1	2	3	4
11. My job requires working very hard	1	2	3	4
12. I am not asked to do an excessive amount of work	1	2	3	4
13. I have enough time to get the job done	1	2	3	4
14. I am free from conflicting demands others make	1	2	3	4
15. My job security is good	1	2	3	4
16. People I work with are competent in doing their jobs	1	2	3	4
17. People I work with take a personal interest in me	1	2	3	4
18. People I work with are friendly	1	2	3	4
19. People I work with are helpful in getting the job done	1	2	3	4
20. My supervisor is concerned about the welfare of those under him	1	2	3	4
21. My supervisor pays attention to what you are saying	1	2	3	4

22. My supervisor is helpful in getting the job done		1	2	3	4
23. My supervisor is successful in getting people to work together		1	2	3	4
	regular and steady	seasonal	frequent layoffs	both seasonal and frequent layoffs	other
24. How steady is your work?	1	2	3	4	5
	never	faced possibility once	faced possibility more than once	actually constantly	laid off
25. During the past year, how often were you in a situation where you faced job loss?	1	2	3	4	5
		not at all likely	not too likely	somewhat likely	very likely
26. Sometimes people permanently lose jobs they want to keep. How likely is it that during the next couple of years you will lose your present job with your employer?	1	2	3	4	

## KAJIAN PENGURUSAN STRES DI KALANGAN PEKERJA UNIVERSITI MALAYA

Soal-selidik penilaian risiko pendedahan terhadap hazard psikologi di tempat kerja

Nama : .....

No ID: .....

Bulatkan jawapan yang betul.

	Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju
1. Pekerjaan saya memerlukan saya mempelajari perkara baru.	1	2	3	4
2. Pekerjaan saya melibatkan kerja yang berulang-ulang.	1	2	3	4
3. Pekerjaan saya memerlukan kreativiti.	1	2	3	4
4. Pekerjaan saya membenarkan saya membuat keputusan sendiri.	1	2	3	4
5. Pekerjaan saya memerlukan kemahiran yang tinggi.	1	2	3	4
6. Semasa bekerja, saya diberi banyak kebebasan untuk membuat keputusan sendiri.	1	2	3	4
7. Semasa bekerja, saya berupaya melakukan berbagai perkara yang berbeza-beza.	1	2	3	4
8. Saya mempunyai banyak hak untuk menentukan pekerjaan saya.	1	2	3	4
9. Saya berpeluang untuk mengembangkan kebolehan saya.	1	2	3	4
10. Pekerjaan saya memerlukan saya untuk bekerja dengan sangat pantas.	1	2	3	4
11. Pekerjaan saya memerlukan saya bekerja bersungguh-sungguh.	1	2	3	4
12. Saya tidak diminta / disuruh untuk melakukan kerja-kerja secara berlebihan.	1	2	3	4
13. Saya mempunyai masa yang cukup untuk menyiapkan kerja saya.	1	2	3	4
14. Saya bebas daripada tekanan-tekanan yang dibuat oleh orang lain.	1	2	3	4
15. Pekerjaan saya dijamin baik.	1	2	3	4
16. Rakan-rakan sekerja saya berkemampuan dalam melakukan kerja mereka.	1	2	3	4
17. Rakan-rakan sekerja mengambil berat tentang saya.	1	2	3	4
18. Rakan-rakan sekerja saya adalah peramah.	1	2	3	4
19. Rakan-rakan sekerja saya membantu bagi	1	2	3	4

memastikan kerja-kerja disiapkan.						
20. Penyelia saya mengambil berat mengenai kebajikan orang bawahannya.			1	2	3	4
21. Penyelia saya memberikan perhatian terhadap apa yang saya katakan.			1	2	3	4
22. Penyelia memberi bantuan dalam memastikan kerja-kerja saya dapat disiapkan.			1	2	3	4
23. Penyelia saya berjaya mengajak orang lain bekerja bersama-sama.			1	2	3	4
	Tetap dan stabil	Ber musim	Kerap tergendala	Bermusim dan kerap tergendala	Lain-lain	
24. Berapa stabilkah kerja anda?			1	2	3	5
	Tidak pernah	Sekali	Lebih dari sekali	Sentiasa	Diberhent ikan	
25. Dalam tempoh setahun yang lepas, berapa kerap anda berdepan dengan masalah kehilangan pekerjaan?			1	2	3	5
		Tidak mungkin	Sedikit kemungki nan	Berkemungk inan	Berkemungki nan besar	
26. Kadangkalaseseorang itu kehilangan pekerjaan tetap mereka. Adakah kemungkinan anda akan kehilangan pekerjaan anda sekarang dalam beberapa tahun lagi?			1	2	3	4

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## Appendix H: Result slip for psychological measurement.

Ini adalah keputusan skor saringan simptom psikologi anda (*This is your psychological symptoms screening score*)

<b>Tekanan (Stress)</b>	Normal	Ringan (Mild)	Sederhana (Moderate)	Teruk (Severe)	Sangat Teruk (Very Severe)
<b>Keresahan (Anxiety)</b>	Normal	Ringan (Mild)	Sederhana (Moderate)	Teruk (Severe)	Sangat Teruk (Very Severe)
<b>Kemurungan (Depression)</b>	Normal	Ringan (Mild)	Sederhana (Moderate)	Teruk (Severe)	Sangat Teruk (Very Severe)

# Appendix I: Brochures designed for intervention group during workshop

Brochures for intervention group (inside)



Occupational stress has become an important entity to be tackled by Occupational Physician as its taking its toll on human lives and organizational effectiveness. University staff reported significantly higher levels of stress relating to work relationships, control, resources and communication and significantly lower level of commitment both from and to their organization. Physiological response to a threatening or difficult aspect of work and can be measured objectively with serum cortisol level.

Employee Assistance Program (EAP) is a workplace-based program designed to assist work organizations in addressing productivity issues, and employee in identifying and resolving personal concerns, including, but not limited to, health, marital, family, financial, alcohol, drug, legal, emotional, stress, or other personal issues that may affect job performance. EAP for stress is specially designed to overcome occupational stress.

## Program Manager:

Dr Marzuki Isahak  
MBBS (Malaya), MPH (Malaya), OHD (Niosh)  
Occupational Health Doctor,  
Occupational and Environmental Health Unit,  
Department of Social and Preventive Medicine,  
Faculty of Medicine, University of Malaya.

Tel: (O) 03-79674756  
(HP) 0123616714  
Fax: 03-79674975  
Email: marzuki@um.edu.my  
dmazuki79@yahoo.com



UM Wellness Program  
Department of Social and Preventive Medicine,  
Faculty of Medicine, University of Malaya

Contact person: Dr Marzuki Isahak (012-3616714)



13, 14 and 15th October, 2009

9.00am — 12.30 pm

Bilik Mesyuarat Perdana 3, Block D,  
PerdanaSiswa Complex,  
University of Malaya



## Employee Assistance Program (EAP) Role-out and Stress Management Workshop

CONGRATULATION..

YOU HAVE BEEN CHOSEN TO JOIN THE  
PROGRAM. THIS PROGRAM WAS DESIGN  
FOR ALL UNIVERSITY OF MALAYA STAFF  
UNDER UM WELLNESS PROGRAM



### Speakers:

LOW MI YEN  
BA (Hons) Psychology, MA Clinical Psychology  
WILSON TEE  
BSc (Hon) Agri Business, MEd, Guidance & Counseling

- Employee Assistance Program (EAP) is a comprehensive website-based program designed to identify and facilitate the resolution of behavioral, health and productivity problems that may adversely affect the well-being or job performance of an employee.

- **UM Wellness EAP for Stress will consist of:**

- **EAP Role-out and Health Risk Assessment for psychosocial hazard at workplace.**
- **Stress Management Workshop.**
- **Two sessions of individual and group counseling with Occupational Health Doctor.**
- **Application of Stress Relaxation Techniques.**

### Program Tentative:

9.00– 9.15 am:	Overview of the workshop
9.15– 9.45 am:	Understand what is stress
9.45–10.15 am:	Recognize symptoms of stress
10.15–10.30 am:	Break
10.30–11.00 am:	Identify sources of stress
11.00–12.30 pm:	Introduce to various coping skills on how to manage stress.





## Appendix J: Mental Health Skills Module (Malay Language version)

### PENGENALAN

Kesihatan minda pekerja mempunyai kaitan rapat dengan pihak pengurusan atasan. Majikan yang menjaga kebajikan kesihatan minda pekerja mampu mempertingkatkan produktiviti pekerja dan syarikat. Majikan yang befikiran positif dapat mewujudkan persekitaran bekerja yang sihat. Kesihatan minda pekerja bergantung kepada tiga keadaan. Pertama, persepsi majikan terhadap pekerja. Kedua skim-skim sosial di tempat kerja. Ketiga fokus majikan terhadap produktiviti syarikat. Justeru itu, majikan perlu mempunyai persepsi positif terhadap pekerja dan tidak mengabaikan aktiviti-aktiviti yang dapat menggalakkan kesihatan minda di tempat kerja. Disamping itu majikan perlulah menyokong semua aktiviti sosial yang mampu menggalakkan cara bekerja yang sihat dalam organisasi. Ini penting bagi memastikan produktiviti syarikat meningkat seiringan dengan peningkatan kesihatan minda pekerja. Semua orang dewasa yang mempunyai kesihatan mental yang baik perlu bekerja, ini adalah kerana pekerjaan boleh memenuhi pelbagai keperluan hidup.

Bekerja secara sihat akan dapat menyumbang kepada kesihatan mental yang baik. Untuk mencapai cara bekerja yang sihat, dewasa yang bekerja perlu mengenali punca-punca stres atau tekanan yang boleh memberi kesan ke atas kerja dan persekitarannya. Selain itu dewasa yang berkerja perlu mempunyai beberapa kemahiran daya tindak bagi mengekalkan kesihatan mental yang baik. Daya tindak merujuk kepada usaha-usaha menguruskan situasi-situasi kehidupan seharian. Menguasai, memiliki dan meningkatkan kemahiran-kemahiran berkenaan adalah penting bagi membolehkan individu untuk berhadapan dengan kehidupan yang lebih baik, menguruskan stres dengan berkesan, mempromosi nilai sendiri yang baik dan membina satu jaringan sokongan sosial yang baik. Stres merupakan perkara yang boleh dialami seseorang dewasa yang berkerja.

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**Nilai sendiri** merujuk kepada bagaimana seseorang individu melihat diri sendiri. Apabila individu merasakan dirinya sempurna mereka akan berasa yakin dengan diri sendiri dan sanggup membuat perubahan untuk membaiki diri sendiri untuk lebih berjaya dalam hidup. Namun begitu merasakan diri sendiri lebih baik adalah tidak mencukupi.

**Sokongan sosial** daripada individu lain dalam kehidupan kita adalah penting. Sokongan sosial akan dapat meningkatkan harga diri seseorang, meningkatkan daya ketahanan diri dan produktiviti pekerja. Individu perlu berada dalam satu kumpulan yang membenarkan ia berkongsi dan mengambil berat antara satu sama lain: saluran untuk meluahkan emosi, mendapat pengiktirafan dan bersedia untuk menerima dan memberi pertolongan.



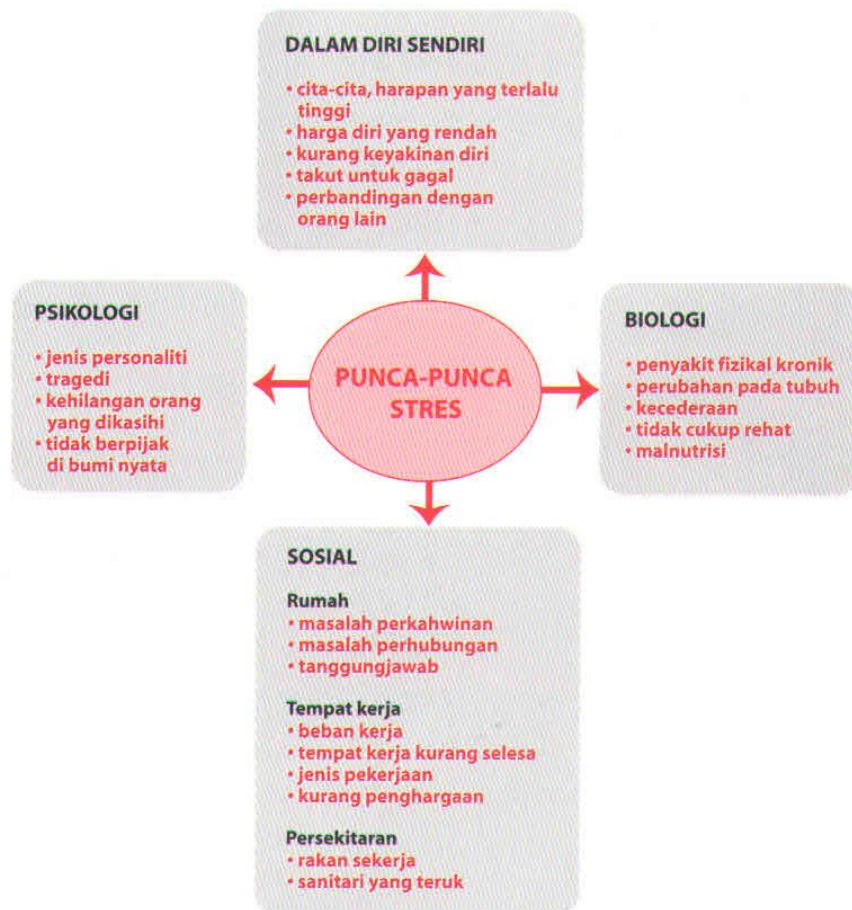
# STRES

## DEFINISI

Stres adalah respons fizikal, emosi dan mental seseorang kepada perubahan/cabaran. Stres boleh berlaku kepada sesiapa sahaja tidak mengira umur, jantina, bangsa atau agama. Tindakbalas yang tidak sihat terhadap stres boleh berlaku apabila seseorang mengalami stres yang melampaui tahap yang boleh diterimanya.

## PUNCA-PUNCA STRES

Faktor-faktor yang boleh menyebabkan stres ialah:



## TANDA-TANDA STRES

### Fizikal

- kering mulut
- gementar
- susah tidur
- cepat letih
- kurang selera makan
- sakit kepala
- lenguh-lenguh badan

### Emosi

- gelisah
- cepat marah
- lemah semangat

### Tingkah laku

- merokok berlebihan
- makan berlebihan
- bertindak secara impulsif
- mudah terkejut
- menyalahguna dadah

### Fikiran

- bimbang
- kurang daya tumpuan
- mudah lupa
- takut gagal
- rendah diri



## A K T I V I T I

### 1

- Fasilitator bertanya kepada klien apa yang mereka faham mengenai stres.
- Fasilitator menerangkan makna stres
- Fasilitator menanyakan soalan "apakah tanda-tanda stres"
- Fasilitator menerangkan tanda-tanda stres
- Fasilitator menanyakan soalan apakah punca-punca stres
- Fasilitator menerangkan punca-punca stres
- Fasilitator mengedarkan kepada klien Penawar Stres

## **KAEDAH-KAEDAH MENANGANI STRES**

Individu boleh menangani stres dengan mengamalkan kaedah 10B.

## **PENAWAR STRES - KAEDAH 10 B**

# **10 B**

**TANGANI STRES  
KAEDAH 10B MERUPAKAN  
KAEDAH MENANGANI STRES  
DENGAN SERTA MERTA**

- B - Bertenang
- B - Bernafas dengan dalam
- B - Berkata: Relaks / tak mengapa
- B - Beribadat
- B - Berurut
- B - Bercakap dengan seseorang
- B - Berehat & mendengar muzik
- B - Beriadah
- B - Bersenam
- B - Berfikir positif



Terdapat beberapa kemahiran yang perlu dipelajari oleh individu yang bekerja bagi menangani stres. Kemahiran-kemahiran tersebut adalah:

- **Kemahiran pengendalian kemarahan dan penyelesaian konflik**

- **Kemahiran berfikir positif**

- **Kemahiran pengurusan masa**

- **Kemahiran penyelesaian masalah dan membuat keputusan**

- **Kemahiran teknik relaksasi**

- **Kemahiran tegas diri / asertif**



# PENGENDALIAN KEMARAHAN & PENYELESAIAN KONFLIK

## OBJEKTIF UNIT

Di akhir unit, peserta boleh:

- Mentakrif konflik dan kemarahan
- Senaraikan respon semasa kemarahan
- Senaraikan faedah-faedah pengendalian kemarahan dan penyelesaian konflik secara berkesan
- Nyatakan beberapa strategi untuk mengendali konflik dan kemarahan secara berkesan.

## DEFINISI KONFLIK DAN KEMARAHAN

Konflik adalah suatu keadaan di mana terdapat percanggahan pendapat antara dua atau lebih individu. Percanggahan boleh meliputi aspek:

- Kepercayaan
- Fakta
- Nilai hidup

Suatu daripada kesan konflik ialah kemarahan. Kemarahan adalah satu keadaan yang boleh timbul akibat dari:

1. kekecewaan kerana dihalang oleh sesuatu atau seseorang.
2. pencabulan hak peribadi seseorang seperti:
  - Prasangka.
  - Pengkhianatan terhadap kepercayaan.
  - Layanan tidak adil.
  - Penderaan fizikal / emosi.
  - Perasaan diaibkan.
  - Masalah perhubungan yang berpanjangan.

Kemarahan boleh berlaku kepada sesiapa sahaja dan ia boleh berlaku samada secara spontan atau perlahan-lahan.

### AKTIVITI

#### Objektif aktiviti

Di akhir aktiviti ini peserta boleh mempelajari bagaimana mengendalikan perasaan marah secara positif dan berupaya untuk menyelesaikan konflik. (fasilitator sila rujuk objektif unit)

#### Pengenalan

Kemarahan terbina secara perlahan-lahan dan menyebabkan perubahan pada fisiologi badan dan boleh mengakibatkan masalah-masalah yang disebabkan oleh tekanan jika ia tidak dikawal. Marah mengakibatkan kesan emosi negatif kepada individu dan menjejaskan keupayaan untuk berfungsi secara optima. (Fasilitator sila rujuk takrif konflik dan punca kemarahan)

### ARAHAN UNTUK FASILITATOR

Fasilitator mempamerkan aktiviti 1 dan meminta peserta untuk memberikan makumbalas / mengadakan role play untuk berinteraksi dengan peserta. Dapatkan maklumbalas mengenai tindakbalas terhadap perasaan marah. (Fasilitator sila rujuk tindakbalas kemarahan)





Rakan sekerja anda kerap mengambil cuti kecemasan sejak akhir-akhir ini. Ini menyebabkan majikan anda mengarahkan supaya anda menanggung kerja beliau di samping memikul tugas anda yang banyak. Keadaan ini juga menyebabkan anda terpaksa membatalkan percutian bersama keluarga yang telah anda rancang. Anda merasa marah terhadap arahan terbaru ini. Nyatakan tindakbalas yang anda rasai apabila anda marah.

### Senario 1

Fasilitator menjelaskan mengenai cara menunjukkan kemarahan yang tidak sesuai. (Fasilitator sila rujuk unit)

#### Tindakbalas kemarahan

Setiap individu berbeza dalam memberi tindakbalas terhadap kemarahan dan konflik. Pada amnya, tindakbalas ini boleh dibahagikan kepada fizikal, emosi dan tingkahlaku.

#### Tindakbalas fizikal

- Peningkatan denyutan jantung.
- Dada terasa sempit.
- Sesak nafas.
- Berpeluh di tapak tangan.
- Menggigil / mengeletar.
- Ketegangan di leher dan bahagian belakang.
- Sakit kepala.
- Kancing gigi.
- Muka merah padam.

#### Tindakbalas emosi

- Mencemuh dan menyindir.
- Kurang daya tumpuan.
- Berasa sangsi.
- Perasaan sedih.



- Tidak pemaaf.
- Bersikap tak ambil peduli.
- Kurang daya kreatif, tidak mampu mengecapi keseronokan.
- Cepat marah dan berang.

#### **Tindakbalas tingkahlaku**

- Suka bertangguh, tidak dapat melaksanakan tanggungjawab.
- Gangguan tidur.
- Gangguan selera makan.
- Kecenderungan merokok dan minum arak.
- Mudah terlibat dengan kemalangan.
- Mengasingkan diri.
- Perasaan tidak tenang.
- Mudah bertindak ganas.
- Enggan menerima nasihat.
- Membuat keputusan secara terburu-buru.
- Berbahasa kesat.

#### **Cara menunjukkan kemarahan yang tidak sesuai**

- Bersikap menyerang.
- Kemarahan sebagai "pertahanan".
- Sifat pasif.
- Menyerang secara pasif.
- Mengelakkan diri.
- Penafian.



### Senario 2

Berdasarkan kepada senario 1, senaraikan langkah-langkah yang anda ambil untuk menangani kemarahan.

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Fasilitator mengarahkan peserta menulis jawapan di atas kertas (masa yang diberi 5 minit). Semua jawapan akan dibaca dan dibincangkan bersama fasilitator.

#### Maklumbalas yang dicadangkan oleh fasilitator:

- Akui hakikat anda sedang marah.
- Lepaskan kemarahan anda secara wajar contoh mengelap lantai menggunakan mop, menyiram pokok bunga, dsb.
- Pastikan sebab / punca kemarahan anda.
- Elakkan memperbesarkan masalah.
- Adakah perbincangan dengan rakan sekerja apabila dia kembali setugas.
- Gunakan kenyataan "saya" contoh 'saya rasa marah apabila anda kerap mengambil cuti'.

Fasilitator menerangkan langkah-langkah pengendalian konflik dan kemarahan (sila rujuk unit). Fasilitator menerangkan mengenai kelebihan menangani kemarahan dan penyelesaian konflik secara berkesan (sila rujuk unit).

## PENGENDALIAN KONFLIK DAN KEMARAHAHAN

### Menyelesaikan konflik

- Apabila situasi kembali tenang, aturkan perbincangan dengan semua pihak yang terlibat.
- Akui adanya konflik.
- Galakkan perbincangan menggunakan pernyataan-pernyataan "Saya". Ini untuk membuatkan setiap individu yang terlibat merasa bertanggungjawab di atas tindak tanduk masing-masing. Contohnya:

"Saya amat marah bila mendapati duit saya hilang. Apa penjelasan awak tentang hal ini."

**Dan BUKANNYA,**

"Saya sangat marah sebab awak curi duit saya"

**atau lebih teruk lagi,**

"Awak yang curi duit saya"

- Pastikan setiap pihak memahami keadaan, bila perlu beri penjelasan tentang apa yang difahami.
- Akui perasaan masing-masing dan bertanggungjawab terhadap tindakan anda kepada situasi tersebut.
- Elakkan dari memperbesarkan isu.
- Beritahu pihak yang terlibat apakah hasil yang anda harapkan dan tanya mereka apa yang mereka perlukan.
- Walaupun tidak mendapat persetujuan, sekurang-kurangnya bersetuju untuk bekerjasama ke arah satu penyelesaian untuk kebaikan semua.
- Sekiranya konflik masih tidak dapat diselesaikan dan anda masih berasa marah, belajar mengawal kemarahan anda.

Terdapat beberapa pendekatan yang boleh diambil untuk mengawal kemarahan. Bagaimanapun tidak ada cara yang tetap bagi mengendalikan kemarahan. Semuanya bermula dengan MENERIMA dan MENGEKALKAN SIKAP BERTENANG. Lakukan apa yang perlu untuk MENENANGKAN diri agar kita dapat mengawal keadaan.

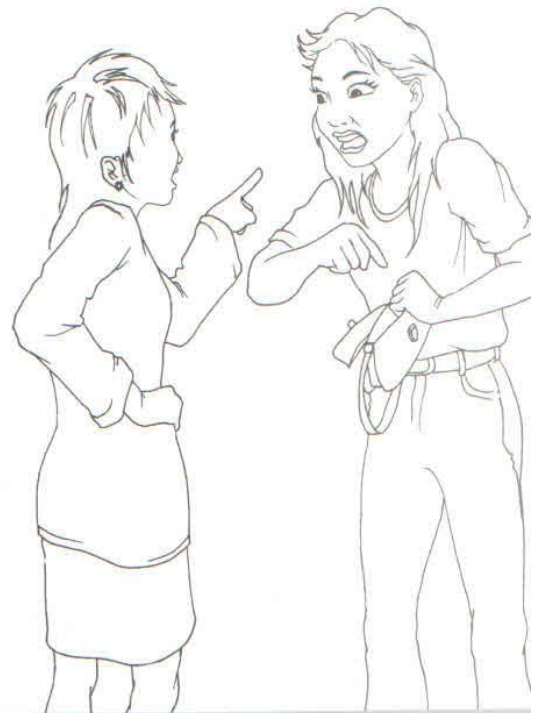
## PANDUAN MENGAWAL KEMARAHAHAN

- "Time Out"
- Tenangkan diri
- Tarik nafas yang panjang
- Bilang satu hingga sepuluh / beristighfar / berzikir / berdoa
- Beredar dari tempat berkenaan
- Bicara diri secara positif
- Lihat situasi secara positif untuk meningkatkan kawalan diri.

Sekiranya anda masih tidak dapat menyelesaikan konflik/kemarahan ini, anda mungkin memerlukan bantuan pihak ketiga atau profesional.

Faedah menangani kemarahan dan konflik secara berkesan:

1. Mengurangkan perasaan derita, kedukaaan dan kekecewaan.
2. Mengelakkan salah faham dari menjadi pertengkaran.
3. Mengukuhkan hubungan sesama individu.
4. Meningkatkan taraf harga diri.
5. Meningkatkan produktiviti kerja.





# BERFIKIRAN POSITIF

## OBJEKTIF UNIT

Di akhir unit ini, peserta boleh:

- Memahami konsep pemikiran positif
- Menyenaraikan beberapa faedah pemikiran positif
- Mengetahui beberapa langkah-langkah amalan pemikiran positif

## DEFINISI PEMIKIRAN POSITIF

Pemikiran positif adalah satu kebolehan untuk melihat kebaikan dalam mana-mana situasi walaupun situasi tersebut biasanya dilihat sebagai negatif

## FAEDAH PEMIKIRAN POSITIF

Klien akan berupaya mengawal situasi dan bukan sebaliknya. Ini membolehkan klien menangani situasi untuk mencapai hasil positif. Pemikiran positif berkait rapat dengan harga diri. Berfikiran positif dan menjauhi fikiran negatif adalah pada amnya strategi daya tindak yang baik dalam menangani tekanan dengan lebih berkesan.

- Fasilitator memberikan suatu senario kepada klien untuk di bincangkan
- Fasilitator akan menganalisa senario bersama-sama klienber
- Fasilitator menerangkan langkah-langkah berfikir secara positif

### SENARIO

Dipersalahkan atas penurunan produktiviti syarikat

Kemungkinan Respon

#### RESPON NEGATIF

##### Pemikiran negatif:

Situasi ini akan diterima dengan dengan ungkapan sebegini, "Mesti ada orang cuba menganiaya aku".

##### Tindakan negatif:

Berasa kecil hati. Mohon berhenti kerja. Terus bersedih dan sentiasa mengelak dari berjumpa rakan sekerja dan pengurus.

##### Hasil negatif:

Tidak dapat menumpukan pada tugas. Prestasi semakin menurun. Mencari helah untuk tidak hadir kerja.

#### RESPON POSITIF

##### Pemikiran positif:

Situasi ini akan diterima dengan dengan ungkapan sebegini, "Aku akan mencuba dengan lebih baik di masa akan datang".

##### Tindakan Positif:

Berjumpa dengan pengurus untuk membincangkan langkah-langkah bagi meningkatkan produktiviti syarikat.

##### Hasil Positif:

Merasa selesa dengan diri sendiri dan mempunyai harga diri yang tinggi. Tidak perlu mengalami stres.

### LANGKAH-LANGKAH MEMBANTU BERFIKIR SECARA POSITIF

- Langkah 1** : Mengenalpasti situasi
- Langkah 2** : Menilai kewujudan pemikiran negatif
- Langkah 3** : Menilai sama ada pemikiran negatif tersebut sah/wajar, Serta mempunyai fakta yang kukuh
- Langkah 4** : Gantikan pemikiran negatif dengan pemikiran yang lebih munasabah





# PENGURUSAN MASA

## OBJEKTIF UNIT

Di akhir unit, peserta boleh:

- Menyenaraikan faedah mengurus masa yang berkesan
- Menyenaraikan beberapa panduan pengurusan masa

## OBJEKTIF

Di akhir unit anda akan mempelajari bagaimana mengenali faedah pengurusan masa yang berkesan serta panduan mengurus masa secara berkesan. (Fasilitator sila rujuk objektif unit).

## PENGENALAN

Pengurusan masa yang berkesan amat penting dalam segala aspek kehidupan. Pengurusan masa yang tidak sempurna mengakibatkan gangguan emosi seperti tekanan, kemahiran dayatindak yang lemah dan mutu kerja yang tidak memuaskan.

### **Arahan kepada fasilitator.**

Pamerkan aktiviti 1 dan dapatkan maklumbalas dari peserta.

Encik A, seorang kerani pejabat, bertanggungjawab menguruskan soal kewangan. Beliau sering tidak dapat menghabiskan kerja mengikut jaduan dan cenderung melengahkan kerja sehingga kesaat akhir. Beliau sering merasa tertekan, melakukan kerja secara tergesa-gesa, kuat merokok dan selalu membuat kesilapan. Akibatnya Encik A sering di panggil dan di beri amaran oleh majikannya.

Nyatakan keburukan menguruskan masa secara tidak teratur. (Fasilitator mendapatkan maklumbalas dari Peserta dan tulis di atas papan putih – Masa yang di ambil 5 minit)

Maklumbalas yang dicadangkan dari peserta:

- Peningkatan tekanan / "stress".
- Perasaan tertekan kecewa dan panik memuncak.
- Mutu kerja dan produktiviti merosot.
- Kurang masa untuk aktiviti lain kerana beban kerja di bawa balik ke rumah.

Fasilitator menerangkan akan faedah pengurusan masa yang berkesan. (Sila rujuk Unit)





### **Faedah pengurusan masa yang berkesan**

- Mengurangkan tekanan. Tekanan boleh disebabkan oleh kegagalan membahagikan masa yang cukup untuk melakukan sesuatu aktiviti. Ini berkesudahan dengan peningkatan kerja, perasaan tertekan, kecewa dan cemas.
- Meningkatkan mutu kerja dan produktiviti.
- Lebih banyak masa untuk diri sendiri dan keluarga.

## **A K T I V I T I 2**

Encik A telah berjumpa kaunselor dan dinasihatkan supaya mengurus masa secara berkesan. Sebagai seorang kaunselor, apa nasihat anda?

Fasilitator mendapat maklumbalas dari peserta

Masa yang diambil 5 minit.

Fasilitator menerangkan panduan mengurus masa secara berkesan.

Masa yang di peruntukan 1 jam.

### **Panduan pengurusan masa secara berkesan**

- Perhatikan jangka masa yang diambil untuk melakukan sesuatu tugas.
- Rancang jadual tugas yang membolehkan anda menyiapkan tugas harian tanpa perasaan tertekan.
- Pastikan adanya waktu rehat di antara pekerjaan.
- Senarai dan jadualkan tugas mengikut keutamaan. Lakukan tugas yang penting terlebih dahulu. Selepas dilaksanakan, beri ganjaran pada diri anda. (seperti memuji diri anda, melakukan sesuatu yang anda gemari seperti mendengar muzik, dll).
- Jika kerja anda tertangguh, kaji punca dan buat jadual semula.
- Buat pemantauan akan kemajuan dan keberkesanan anda menguruskan masa.

# PENYELESAIAN MASALAH & MEMBUAT KEPUTUSAN

## OBJEKTIF UNIT

Di akhir unit ini anda boleh:

- Memberi takrifan mengenai penyelesaian masalah dan membuat keputusan.
- Menyenaraikan kebaikan cara penyelesaian masalah dan membuat keputusan yang berkesan.
- Menyatakan langkah-langkah penyelesaian masalah dan membuat keputusan yang berkesan.

## 3.1 PENYELESAIAN MASALAH

### TAKRIFAN PENYELESAIAN MASALAH

Mengenalpasti masalah dan puncanya serta kaedah yang dipilih untuk mengatasi masalah berkenaan. Faedah kemahiran penyelesaian masalah yang berkesan.

- Berupaya mengesan dan memberi keutamaan di dalam menyelesaikan masalah.
- Mengurangkan tekanan (stres).
- Mencari jalan terbaik untuk menyelesaikan masalah dengan membuat keputusan yang baik.
- Menjimatkan penggunaan sumber seperti masa, tenaga dan kewangan.



Langkah-langkah Dalam Penyelesaian Masalah Menggunakan Kaedah **I.D.E.A.L.**

- I** - (Identify) mengenalpasti masalah.
- D** - (Describe) Perelaskan beberapa pilihan cara penyelesaian.
- E** - (Evaluate) Nilai kebaikan dan keburukan pilihan-pilihan tersebut.
- A** - (Act) Bertindak atas pilihan yang telah dibuat.  
(Rujuk kepada Panduan Membuat Keputusan)
- L** - (Learn) Semak semula keberkesanan tindakan yang telah diambil dan berikan pujian di atas usaha anda dan mereka yang terlibat.

### 3.2 MEMBUAT KEPUTUSAN

#### TAKRIFAN MEMBUAT KEPUTUSAN

Membuat keputusan ialah membuat pilihan penyelesaian berdasarkan kepada beberapa pilihan yang ada. Faedah membuat keputusan yang baik.

- Berupaya membuat pilihan yang lebih baik.
- Berupaya memperolehi keputusan yang lebih baik.
- Mengurangkan tekanan.

**Langkah-langkah membuat keputusan yang baik.**  
**Kaedah **I.D.E.A.L** dalam langkah-langkah**  
**Penyelesaian Masalah boleh digunakan.**

## PANDUAN MEMBUAT KEPUTUSAN YANG BAIK

- Mengambil kira mereka yang akan terbabit dengan keputusan anda dan libatkan mereka dari awal lagi.
- Tulis proses membuat keputusan di atas kertas. Catitkan cadangan-cadangan bersama butiran penting yang dapat membantu dalam membuat keputusan dan juga untuk rujukan di masa akan datang
- Nyatakan kebaikan dan kelemahan setiap pilihan. Ini memudahkan lagi anda membuat pilihan.
- Pilih satu pilihan yang terbaik berdasarkan kebaikan dan keburukan yang dinyatakan. Ini bukanlah bermakna membuat pilihan di antara yang betul dengan yang salah. Kadangkala kita dapat membuat pilihan yang terbaik dari kalangan yang baik.
- Percaya pada diri sendiri semasa membuat keputusan. Perlu diingatkan bahawa keputusan anda bukan 100% tepat. Selalunya membuat keputusan yang kurang tepat adalah lebih baik daripada tidak membuat keputusan langsung.
- Bila keputusan telah dibuat, elak dari merasa ragu-ragu kerana ia boleh mempengaruhi anda. Tumpukan perhatian anda kepada langkah seterusnya. Jangan menyesal di atas keputusan yang telah anda ambil. Itu adalah keputusan yang paling tepat pada masa itu. Tumpukan pula pada yang terbaik untuk masa kini.
- Jangan membuat keputusan secara tergesa-gesa. Tangguhkan membuat sebarang keputusan jika anda tidak mempunyai maklumat lengkap mengenainya.

**MEMBUAT KEPUTUSAN ADALAH MERUPAKAN PERKARA UTAMA DALAM PENYELESAIAN MASALAH.**





### Objektif aktiviti

Di akhir aktiviti para peserta dapat membantu dewasa bekerja untuk memperjelaskan masalah secara rasional dan merancang penyelesaian masalah secara sistematik.

### Pengenalan

- Mempunyai kemahiran menyelesaikan masalah dapat membantu mengurangkan tekanan dan meningkatkan keupayaan seseorang menyelesaikan masalah yang dihadapi. Secara tidak langsung ini membantu penggunaan sumber contoh: masa, wang, sumber manusia secara optima.
- Fasilitator memberi takrifan penyelesaian masalah dan faedah kemahiran penyelesaian masalah yang berkesan.
- Fasilitator menerangkan langkah-langkah di dalam penyelesaian masalah menggunakan kaedah IDEAL.
- Fasilitator menerangkan mengenai membuat keputusan. Ini termasuk takrifan kebaikan, dan langkah-langkah membuat keputusan yang baik.

Katakan anak anda tiba-tiba jatuh sakit. Pada waktu yang sama anda ditugaskan menyelesaikan satu projek penting yang perlu diselesaikan segera. Anda merasa amat tertekan dan perlu membuat keputusan. Apa yang perlu anda lakukan?

Fasilitator memberi tugas kepada peserta untuk memberi jawapan secara bertulis. Masa yang diperuntukkan ialah 10 minit.

Fasilitator mendapat maklum balas dari peserta.

Fasilitator menayangkan cadangan maklum balas.

Fasilitator berinteraksi dengan peserta melalui pernyataan masalah yang dikemukakan oleh peserta.



Fasilitator menggunakan kertas tugas IDEAL.

### **Dokumenkan langkah-langkah dalam penyelesaian masalah**

- Mengenalpasti masalah.
- Memilih samada mengambil time off dari pejabat dan bawa anak ke hospital.

### **Menerangkan cadangan**

#### **Cadangan 1**

- Ambil cuti dan bawa anak ke hospital

#### **Cadangan 2**

- Selesaikan tugas dan biar isteri bawa anak ke hospital

#### **Cadangan 3**

- Ambil time off. Hantar anak ke hospital bersama isteri.
- Kembali ke pejabat dan selesaikan kerja.

### **Menilai setiap cadangan**

- Ambil berat keluarga. Tekanan kerana kerja tak siap.
- Kerja siap rasa bersalah kerana mengabaikan keluarga.
- Selesa menjalankan tanggungjawab sebagai ayah.
- Mungkin kerja siap lewat dari masa yang ditetapkan.

### **Tindakan**

#### **Pilih cadangan 3**

- Tekanan / stress minima.
- Tiada rasa bersalah.
- Dua masalah dapat diselesaikan serentak.

### **Pengajaran**

Saya belajar menjalankan tanggungjawab sebagai ayah dan pekerja dengan kemahiran penyelesaian masalah.

# TEKNIK RELAKSASI

## OBJEKTIF UNIT

Di akhir unit ini peserta boleh:-

- Memberi takrifan mengenai relaksasi.
- Menyatakan faedah latihan relaksasi
- Mengamalkan sebahagian kaedah dalam latihan relaksasi.

## DEFINISI RELAKSASI

- Merujuk kepada sesuatu keadaan di mana pergerakan anggota tubuh diberhentikan secara sedar.
- Melibatkan pergerakan otot-otot skeletal.
- Minda anda ditumpukan kepada sensasi tubuh.

## FAEDAH-FAEDAH RELAKSASI

- Mengurangkan masalah fizikal akibat dari rasa tertekan seperti gangguan tidur, sakit kepala, tekanan darah tinggi dll.
- Meningkatkan tahap keyakinan dan 'harga diri' (self esteem) hasil daripada keupayaan mengawal reaksi tekanan dengan baik.
- Sikap tenang hasil dari relaksasi dapat memperbaiki perhubungan anda dengan orang-orang lain.

**Semasa latihan relaksasi anda melatih anggota badan anda untuk sentiasa relaks menerusi kaedah latihan otot yang anda lakukan sendiri. Dengan ini ketegangan yang anda alami akan turut berkurangan.**



## TEKNIK-TEKNIK RELAKSASI

### 1. Teknik Kognitif (mendamaikan fikiran)

Bila fikiran kita terganggu kita akan menjadi cemas dan mengalami ketegangan fizikal. "Kita adalah apa yang kita fikirkan". Mengingati masa lampau dan bimbang tentang masa depan menyebabkan anda tidak tenteram. Keupayaan minda anda untuk menumpukan kepada keadaan semasa boleh mewujudkan ketenangan. Anggapan yang digunakan di sini ialah seseorang individu tidak boleh menumpukan fikiran lebih daripada satu perkara dalam satu masa. Anda boleh mulakan dengan memberi tumpuan sepenuhnya kepada apa jua aktiviti yang anda sedang jalankan ketika itu. Gunakan semua pancaindera anda untuk menikmati saat ini. Semakin mendalam tumpuan anda di saat itu semakin jauh permasalahan itu meninggalkan fikiran anda. Cara ini didapati amat berkesan untuk menghilangkan perasaan tidak tenteram, lebih-lebih lagi jika ia diamalkan bersama dengan senaman relaksasi.

### 2. Senaman Pernafasan

- Tegangkan otot-otot anda dan tarik nafas sedalamnya.
- Amati ketegangan otot anda dan tahan nafas selama 4 – 8 saat.
- Relaksan otot-otot anda secara serentak dan serta merta.
- Amati perbezaan perasaan relaksasi tersebut. Teruskan relaksasi tersebut selama 30 – 60 saat.

### 3. Teknik bantu diri Jacobsonian

Anda boleh melaksanakan kaedah ini secara duduk bersandar atau berbaring dengan mata tertutup. Tegangkan otot anda dan kekalkan keadaan itu selama 10 – 15 saat. Hayati ketegangan otot-otot tersebut. Kendurkan otot-otot berkenaan dan hayati perbezaan apabila otot-otot tersebut tegang dan kendur. Ketika anda menghembuskan nafas cuba fikirkan dan berkata dalam diri anda "ketegangan saya semakin menghilang dan saya merasa relaks".



### **LANGKAH 1**

Duduk dalam keadaan selesa. Tutupkan mata dan bebaskan diri anda daripada sebarang gangguan.

### **LANGKAH 2**

Amati diri anda dan perhatikan di mana ketegangan berlaku. Peruntukan sedikit masa untuk merasakan jenis ketegangan contohnya sengal, tegang, sakit dan lain-lain.

### **LANGKAH 3**

Amati pernafasan anda – perasaan anda bila menarik dan menghembuskan nafas. Letakkan tangan anda di atas dada untuk merasakan pergerakan tulang rusuk. Kalau pernafasan anda 'cepat dan pendek' cuba perlahan sedikit dengan menarik nafas yang lebih panjang dan lebih berirama. Ini memberi ruang untuk lebih udara masuk ke dalam paru-paru.

### **LANGKAH 4**

Genggam kedua-dua belah tangan.

### **LANGKAH 5**

Rendahkan bahu anda serendah yang boleh.

### **LANGKAH 6**

Tarik nafas lebih kurang 1 minit.

### **LANGKAH 7**

Tolakkan kepala anda kepada penyandar. Hati-hati jangan melampaui perbuatan untuk mengelakkan daripada kecederaan leher anda.

#### **LANGKAH 8**

Pejamkan mata dengan rapat.

#### **LANGKAH 9**

Kancingkan gigi anda tapi jangan melebihi tahap untuk mengelakkan gigi dari tercedera. Anda akan merasai kurang selesa sekiranya keadaan ini dikekalkan melebihi 4 saat.

#### **LANGKAH 10**

Kembali bernafas untuk 1 minit.

#### **LANGKAH 11**

Letakkan konsentrasi ditempat-tempat berlaku ketegangan (Langkah 2). Tegangkan dan longgarkan otot di bahagian ini sebagaimana diarahkan.

#### **LANGKAH 12**

Kembali bernafas untuk 1 minit

#### **LANGKAH 13**

Amati kembali ketegangan yang anda alami untuk mengetahui sama ada ianya telah berkurangan.

#### **LANGKAH 14**

Penutup – Gerakkan jari anda terlebih dahulu diikuti dengan gerakan bahu anda, gerakan kepala dari sisi ke sisi, tarik nafas dalam-dalam dan hembuskan perlahan-lahan, buka mata, rengangkan otot-otot secara perlahan-lahan. Amalkan senaman ini setiap hari selama 20 minit.



# TEGAS DIRI (ASERTIF)

## OBJEKTIF UNIT

Di akhir unit anda boleh:

- Mentakrifkan asertif.
- Memberi gambaran individu yang asertif.
- Menyenaraikan faedah latihan asertif.
- Membuat latihan untuk menilai tahap perlakuan asertif anda.
- Menyenaraikan langkah-langkah untuk meningkatkan lagi sikap asertif.

## TAKRIF SIKAP ASERTIF

Keupayaan untuk meluahkan perasaan, keperluan dan buah fikiran secara jelas, jujur, dan berterus terang. Pada masa yang sama berupaya menghormati keperluan dan perasaan orang lain.

- Sikap asertif juga bermaksud berupaya untuk mengawal diri dan bertanggungjawab kepada diri sendiri
- Boleh membuat keputusan dalam apa jua situasi
- Sedia mendengar dan memahami perasaan, keperluan dan kedudukan orang lain.

## CIRI-CIRI INDIVIDU YANG ASERTIF

### Individu yang asertif:

- Dapat menyatakan pendapat, perasaan dan kemahuan mereka.
- Faham akan hak mereka untuk bersuara
- Berterus terang, jujur dan berhemah
- Menghormati perasaan orang lain, tidak cuba menakutkan orang lain.

## FAEDAH BERSIKAP ASERTIF

- Memberi peluang untuk anda menyuarakan hak anda tanpa melanggar hak orang lain.
- Meningkatkan kesejahteraan diri anda
- Meningkatkan harga diri dan keyakinan dalam diri
- Mengelakkan orang lain daripada mengambil kesempatan ke atas diri anda.
- Seseorang yang asertif dapat meluahkan buah fikiran dengan tepat, jelas dan berkesan
- Dia boleh menyatakan tidak tanpa rasa bersalah
- Merasa selesa dengan diri sendiri
- Meningkatkan perhubungan yang baik dengan orang lain.
- Melahirkan perasaan tidak bersetuju tanpa berasa marah
- Boleh meminta pertolongan bila memerlukannya.
- Dihormati oleh orang lain.



## PENILAIAN SIKAP ASERTIF

Anda boleh menilai sikap asertif anda dengan menjawab soalan-soalan berikut (Lihat Lampiran Soalan).

## BAGAIMANA MENILAI SIKAP ASERTIF ANDA

1. Dalam sesuatu mesyuarat yang diselubungi oleh kemarahan, percanggahan pendapat, saya boleh bercakap dengan penuh yakin.
2. Jika saya merasa ragu-ragu, saya mudah meminta pertolongan.
3. Kalau ada sesiapa bersikap tidak adil dan garang saya dapat menangani situasi ini dengan penuh keyakinan.
4. Bila seseorang suka menyindir saya atau pun orang lain, saya dapat bercakap tanpa merasa marah.
5. Bila saya ditindas, saya akan menyuarkan pandangan saya dengan terus terang tanpa bersikap agresif.
6. Sekiranya saya merasa saya diambil mudah saya boleh menarik perhatian mengenai perkara itu tanpa bermasam muka atau rasa kecewa.
7. Kalau seseorang meminta kebenaran untuk melakukan sesuatu yang saya tidak mahu beliau lakukan seperti merokok saya akan menyatakan "JANGAN" tanpa merasa bersalah.
8. Kalau sesiapa minta pendapat tentang sesuatu, saya boleh memberikan pandangan walaupun ianya tidak popular.
9. Saya boleh berhubung secara mudah dan berkesan dengan orang atasan.
10. Bila layanan yang diberikan tidak memuaskan samada di kedai ataupun di restoran saya dapat menyatakan perasaan tidak puas hati tanpa menyerang pihak lain.
11. Bila terdapat sesuatu peluang / tawaran yang penting saya akan menyuarkan bagi pihak diri sendiri
12. Bila saya dapat mengesan sesuatu yang tidak betul, saya akan bertindak tanpa menunggu akibat yang lebih buruk.

13. Bila ada berita buruk yang perlu saya sampaikan saya dapat menyatakan dengan tenang tanpa terlalu risau.
14. Jika saya memerlukan sesuatu saya akan memintanya secara terus terang.
15. Bila seseorang tidak memberi perhatian terhadap apa yang saya katakan, saya berupaya menyampaikan maksud saya tanpa bercakap lantang dan merasa kecewa.
16. Bila seseorang silap memahami apa yang saya sampaikan saya akan membuat pembedaan tanpa rasa bersalah ataupun memperkecilkan orang lain.
17. Bila saya tidak bersetuju dengan pandangan ramai, saya dapat menyampaikan pendapat saya tanpa rasa bersalah ataupun angkuh.
18. Saya sedia menerima teguran.
19. Saya dapat memberikan pujian tanpa berasa malu atau kelihatan mengampu.
20. Bila saya marah saya masih dapat menyampaikan pendapat tanpa menghukum ataupun merasa kecewa.





## BAGAIMANA MEMBUAT PENILAIAN

- Jumlahkan kesemua markah pada jawapan setiap ruang.
- Kalau jumlah di antara 20 ke 25, anda seorang yang berkeyakinan dan asertif dalam menghadapi sebarang situasi.
- Kalau jumlah skor di antara 26 ke 35 walaupun boleh mempunyai sikap asertif tetapi anda mungkin boleh memperbaiki melalui latihan asertif.
- Kalau jumlah skor di antara 36 ke 50, sikap asertif anda tidak konsisten dan anda seharusnya berusaha untuk memperbaiki sikap.
- Kalau jumlah skor di antara 51 ke 80, anda perlu berusaha keras untuk membentuk sikap asertif.

### Petua untuk meningkatkan sikap tegas

- Biasakan untuk menunjukkan sikap tegas.

### TIGA langkah mudah untuk menunjukkan sikap asertif:

- Perjelaskan situasi dan bagaimana ianya mengganggu perasaan anda.
- Nyatakan perasaan anda secara jelas, jujur dan terbuka.
- Nyatakan apa yang anda kehendaki / perlukan.

## A K T I V I T I

### Objektif aktiviti

Di akhir aktiviti para peserta berupaya untuk bersikap asertif ditempat kerja.

### Pengenalan

Sikap asertif bermakna seseorang boleh menyatakan perasaan keperluan dan pandangan secara jujur, jelas dan terbuka tanpa menimbulkan perasaan tersinggung kepada orang lain.

Fasilitator menerangkan takrifan sikap asertif. (Fasilitator sila rujuk unit)

Fasilitator mengedarkan borang soal selidik berkaitan sikap asertif.

Peserta diminta untuk mengisi atau memberi jawapan kepada semua soalan secara jujur. Masa yang diberi 10 minit.

Fasilitator menayangkan cara penilaian kepada borang soal selidik serta makna penilaian tersebut

Fasilitator menerangkan ciri-ciri individu yang asertif. (Fasilitator sila rujuk unit)

### **SENARIO 1**

Anda seorang pekerja yang rajin dan boleh diharapkan di pejabat kerana itu majikan anda kerap menyerahkan tugas atau projek penting untuk anda bereskan. Anda merasa terlalu banyak beban kerja yang diberikan kepada anda. Bagaimana tindakan anda mengenai permasalahan ini.

Fasilitator meminta dua peserta untuk melakukan role-play, seorang mengambil peranan pekerja manakala seorang lagi majikan. Role play ini mengambil masa 5 minit. Di akhir role play fasilitator menyoal peserta untuk mendapatkan makluman balas mengenai perasaan mereka dan komen dari kumpulan.

#### **Maklumbalas yang dicadangkan untuk panduan fasilitator**

1. Saya dibeban oleh banyak tugas
2. Saya rasa tertekan
3. Saya tidak seronok dan susah hati
4. Saya rasa tugas ini perlu dikongsi oleh semua pekerja di pejabat

#### **Maklum balas dari peserta**

1. Perasaan mereka untuk menyatakan 'tidak' kepada majikan
2. Adakah sukar untuk menyatakan 'tidak'

### **SENARIO 2**

Fasilitator melakukan role play sekali lagi berdasarkan dari maklum balas yang dibuat peserta di dalam borang soal selidik. Role play ini berdasar kepada jawapan yang dianggap bermasalah.



**Rajah 1 : Perbezaan di antara sikap Pasif, Tegas dan Agresif/Garang**

	PASIF	TEGAS	AGRESIF/ GARANG
<b>Lisan</b>	<ul style="list-style-type: none"> <li>Meminta maaf</li> <li>Merayu</li> <li>Meleret</li> <li>Meremehkan</li> <li>Merendah diri</li> </ul>	<ul style="list-style-type: none"> <li>Kenyataan ringkas dan jelas</li> <li>Pertanyaan menunjuk kehendak</li> <li>Pernyataan objektif</li> <li>Kritikan membina</li> </ul>	<ul style="list-style-type: none"> <li>Lebih menyebut saya</li> <li>Angkuh</li> <li>Menekan</li> <li>Mengancam</li> <li>Menyindir</li> <li>Menyalah dan merendahkan orang</li> </ul>
<b>Bukan Lisan</b>			
a. Umum	<ul style="list-style-type: none"> <li>Gerak badan</li> <li>Mengharap orang yang bertanya kemahuan anda</li> </ul>	<ul style="list-style-type: none"> <li>Tingkah-laku mendengar penuh minat, konfiden</li> <li>Membayangkan kekuatan &amp; prihatin</li> </ul>	<ul style="list-style-type: none"> <li>Menunjuk kekuatan secara berlebihan, angkuh</li> </ul>
b. Khusus	<ul style="list-style-type: none"> <li>Pandangan yang tidak meyakinkan bila menyatakan sesuatu</li> </ul>		
1. Suara	<ul style="list-style-type: none"> <li>Tidak bermaya</li> <li>Teragak-agak</li> <li>Halus dan</li> <li>Kekadang ragu-ragu</li> </ul>	<ul style="list-style-type: none"> <li>Tegas, mesra, relaks, suara yang bersesuaian</li> </ul>	<ul style="list-style-type: none"> <li>Nyaring, kuat, tidak mesra, otoritatif</li> </ul>
2. Mata	<ul style="list-style-type: none"> <li>Sentiasa merenung ke bawah, berair dan merayu</li> </ul>	<ul style="list-style-type: none"> <li>Pandangan ikhlas, ada kontek mata tetapi bukan menatap dengan tajam</li> </ul>	
3. Lain-lain	<ul style="list-style-type: none"> <li>Mencari sokongan</li> <li>Memutar belit</li> </ul>		
a. Kedudukan diri	<ul style="list-style-type: none"> <li>Membongkok</li> <li>Mengecil</li> </ul>	<ul style="list-style-type: none"> <li>Selesa dan relaks</li> </ul>	<ul style="list-style-type: none"> <li>Cekak pinggang, kasar, suka menyindir</li> </ul>
b. Gaya atau posisi tubuh	<ul style="list-style-type: none"> <li>Melendut</li> <li>Mengangguk kepala berlebihan</li> </ul>	<ul style="list-style-type: none"> <li>Relaks,</li> <li>pergerakan natural</li> </ul>	
c. Tangan	<ul style="list-style-type: none"> <li>Sejuk</li> <li>Mengegetar</li> </ul>		<ul style="list-style-type: none"> <li>Menuding jari, tindakbalas terburu-buru, menumbuk-nyumbuk</li> </ul>
d. Kaki	<ul style="list-style-type: none"> <li>Berjalan menyeret, resah-gelisah, menghayun kaki</li> </ul>	<ul style="list-style-type: none"> <li>Kedudukan selesa</li> </ul>	<ul style="list-style-type: none"> <li>Mengetuk perlahan-lahan</li> </ul>

## **Summary of Mental Health Skills Module**

Mental health workers have a close relationship with the top management. Employers that are concerned about mental health will be able to enhance employee and company productivity. Employers with positive thinking can create a healthy working environment. Mental health at the workplace depends on three conditions; the perception of employers towards their workers, social schemes in the workplace and employers' focus on the productivity of the company. Therefore, employers should have a positive perception of the employee and should not ignore activities which promote mental health in the workplace. In addition, the employer needs to support all the social activities that can promote a healthy way of working in the organisation. This is important to ensure that productivity increases along with workers' advancement in mental health. All healthy adults need to work as this will meet the diverse needs of life. This module has been issued by the Ministry of Health Malaysia in 2008. It aims to provide guidance to counsellors and workers on mental health skills. This module was divided into six units. Each unit discusses various mental health issues. These include:

Unit 1: Handling anger and conflict resolution.

Unit 2: Positive thinking.

Unit 3: Time management.

Unit 4: Solving problems and decision making.

Unit 5: Relaxation techniques.

Unit 6: Assertive techniques.

### **Unit 1: Handling anger and conflict resolution**

The objective of this unit is to ensure that workers can:

- Define conflict and anger.
- List the anger response.

- List the benefits of handling anger and resolving conflicts effectively.
- Learn strategies of conflict and anger management effectively.

Activities such as role play will help workers learn how to handle anger in a positive way. Counsellor will ask participants to interact with each other and provide responses that are felt when angry. Counsellor will explain the improper anger response. These include physical, emotional and behavioural reactions. Soon after, counsellor will demonstrate the proper response to anger.

#### Guide to control anger.

- 'Time Out'.
- Relax.
- Long breaths.
- Count from one to ten / chanting / praying.
- Move away from the spot.
- Positive self-talk.
- See situations positively to enhance self-control.

### **Unit 2: Positive thinking**

The objectives of this unit are to ensure workers are able to:

- Understand the concept of positive thinking.
- List down the benefits of positive thinking.
- Practice the steps in positive thinking.

Counsellor will give a scenario and analyse the problem with the workers.

Possible positive and negative responses will be demonstrated.

### Measures for positive thinking

Step 1: Identify situation.

Step 2: Assess the existence of negative thinking.

Step 3: Assess whether the reasoning is valid and has enough evidence.

Step 4: Replace negative thoughts with more reasonable thinking.

### **Unit 3: Time management**

The workers should be able to:

- List down the benefits of effective time management.
- List down some time management tips.

Two activities under this unit concentrate on the benefits and guides for effective time management.

### **Unit 4: Problem solving and decision making**

At the end of this unit, the workers should understand:

- The definition of problem solving and decision making.
- The benefit of effective problem solving and decision makings
- Demonstrate effective measures for problem solving and decision making.

I.D.E.A.L method was used for problem solving.

I- Identify the problems.

D - Describe the solutions.

E – Evaluate the positive and negative aspect of the decision.

A – Act on the decision made.

L – Learn and review the effectiveness of the decision made.

Two activities were introduced in this unit to resemble problems related to problem solving and decision making.

### **Unit 5: Relaxation techniques**

In this unit, the workers should be able to:

- Define relaxation.
- Explain the benefit of relaxation.
- Apply some of the relaxation techniques.

Among relaxation techniques taught were:

- Cognitive technique (imagery therapy).
- Deep breathing therapy.
- Jacobsonian self-help technique (Progressive muscle relaxation).

Audio-visual assistance will be used for the activity in this unit.

### **Unit 6: Assertiveness techniques**

The objectives for this unit are:

- Define assertiveness.
- Illustrate the individual with good assertiveness.
- List down the benefit of assertiveness exercises.
- List down measures to improve self-assertiveness.

Counsellors were informed how to assess client assertiveness. Activities in this unit require workers to response to the issues provoked by the counsellor.

# Appendix K: Stress Management Workshop

## presentation slides

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### Stress at Workplace



1

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- What is stress
- Stress at workplace
- Causes of stress in the workplace
- Symptom of stress
- Effects of stress in the workplace
- Ways to Reduce Occupational Stress
- Physical and Mental Relaxation Therapy

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### Stress – What is it?

- Stress – physiological and psychological responses to events in the environment
  - Eustress: good stress
  - Distress: bad stress



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- Physiological Effects
  - Alarm: preparation of body for fight or flight
  - Resistance: maintain state of elevated preparation
  - Exhaustion: when demands exceed body's capabilities

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- Stress, by definition, is the inability to cope with a threat (real or imagined) to your well-being, which results in a series of responses and adaptations by your body.
- Stress can lead to poor health and even injury.



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## Stress – More Background

- Where does stress come from?
  - Major life events?
  - Daily hassles: frequency, intensity, duration
- Job satisfaction and stress – those who enjoy work suffer less impact from stressful events



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- Unlike stress, "challenge" is an important ingredient for healthy and productive work.
- Often confused, challenge energizes people psychologically and physically. It motivates people to learn new skills and master their jobs.
- When a challenge is met, people feel relaxed and satisfied.

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## Stress in the Workplace

- With increasing time spent on the job, job stress is becoming a painful reality for many workers.
  - 40% of workers reported that their job was very often extremely stressful.
  - 25% view their jobs as the number one stressor in their lives.
  - 75% of employees believe that they have more on-the-job stress than the generation before them.

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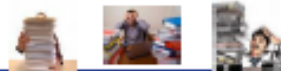
- 26% of workers said they were, "often or very often burned out or stressed by their work."
- Cost of stress related disorders is estimated to be \$150 billion a year
- Stress related disorders comprise 14% of workers' compensation cases



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## Stressful Job Factors

- Physical, chemical & biological hazards.
- Work overload.
- Work pressure.
- Responsibility for people.



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- Role conflict & role ambiguity.
- Inability to develop satisfying social relationships at work.
- Perceived inadequate career development.
- Lack of control over work.

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## Stress and Type of Occupation

- Clerical and blue collar workers suffer the most stress due to a relative lack of control
- Most stressful professions include: laborer, secretary, clinical lab. technician, nurse, first-line supervisor, restaurant server, machine operator, farm worker, miner



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## Causes of Stress in the Workplace

- Work overload
  - Quantitative: too much to do in too short a time
  - Qualitative: work that is too difficult
  - Quantitative has increased in recent years due to downsizing
- Work underload – work that is too simple or insufficient to fill one's time
- Both of these impact stress and health, appears that a moderate amount of stress is optimal



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## Causes of Stress - Continued

- Organizational Change – if not handled, change causes stress in individuals. Can be reduced by including employees in planning
- Role Ambiguity – unstructured or poorly defined job responsibilities (expected standards, methods, schedules)
- Role Conflict – conflict between job demands and employee's personal standards



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## Symptom of stress

- Breathlessness / Palpitation
- Nausea / vomiting
- Dizziness
- Asthma
- Needs for alcohol
- Excessive smoking
- Loss of appetite
- Craving for food

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## Symptom of stress

- Insomnia
- Nightmares
- Constant tiredness
- Onset of allergies
- Chronic indigestion
- Nail biting
- Constipation / diarrhoea
- Finger / foot tapping

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### Symptom of stress

- Headache / migraine
- Anxiety attacks
- Neck / backache
- Ulcers
- Becoming accident prone
- Eczema / psoriasis
- Addiction to medication
- Impotence

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### Symptom of stress

- High Blood Pressure
- Anger / violence
- Phobia
- Strokes
- Heart disease
- Cancer

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### Effects of Stress in the Workplace

- Mass psychogenic illness – also known as assembly line hysteria. Isolation and suggestibility
- Burn out – results from overwork.  
Includes,
  - Emotional Exhaustion
  - Depersonalization
  - Reduced sense of personal accomplishment
  - Quantity of work may stay the same, but the quality declines, depression, apathy, irritability, and boredom may occur



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### Ways to Reduce Occupational Stress

1. Reduce physical stressors
2. Minimize unpredictability and ambiguity.
3. Involve workers in decision-making.
4. Make jobs as interesting as possible.
5. Promote social relationships.
6. Reward workers for good work.
7. Watch for signs of stress, boredom, hostility, and intervene.



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### Treating Stress in the Workplace

- Organizational Techniques
  - Provide sufficient support for change
  - Provide sense of control through participation
  - Clearly define employee roles
  - Eliminate work over and under load
  - EAPs for stress reduction (teach coping strategies)
  - Provide opportunity for social support (formal or informal)



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### Individual Techniques for Stress Reduction

- Exercise
- Relaxation Training
- Biofeedback
- Behavior Modification



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### Physical and Mental Relaxation Therapy

1. Deep Breathing
2. Progressive Muscular Therapy
3. Relaxation Response
4. Imaginary Therapy

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### 1. Deep Breathing

- Deep breathing is a simple, but very effective, method of relaxation. It is a core component of everything from the "take ten deep breaths" approach to calming someone down.
- To use the technique, take a number of deep breaths and relax your body further with each breath. That's all there is to it!

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### 2. Progressive Muscular Therapy

- Progressive Muscular Relaxation is useful for relaxing your body when your muscles are tense.
- Tense up a group of muscles so that they are as tightly contracted as possible. Hold them in a state of extreme tension for a few seconds. Then, relax the muscles normally. Then, consciously relax the muscles even further so that you are as relaxed as possible.

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### 3. Relaxation Response

- Sit quietly and comfortably.
- Close eyes.
- Start by relaxing the muscles of feet
- Focus attention on breathing.
- Breathe in deeply and then let breath out. Count the breaths, and say the number of the breath as we let it out (this gives us something to do with our mind, helping us to avoid distraction).
- Do this for ten or twenty minutes

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### 4. Imaginary Therapy

- Imagery is a potent method of stress reduction, especially when combined with physical relaxation therapy.
- One common use of imagery in relaxation is to imagine a scene, place or event that you remember as safe, peaceful, restful, beautiful and happy.

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### Imaginary Therapy (cont.)

- You can bring all your senses into the image with, for example, sounds of running water and birds, the smell of cut grass etc.
- Use the imagined place as a retreat from stress and pressure.
- Scenes can involve complex images such as lying on a beach.
- You may "see" cliffs, sea and sand around you, "hear" the waves crashing against rocks, "smell" the salt in the air, and "feel" the warmth of the sun and a gentle breeze on your body.

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### Summary of Relaxation Therapy

- "Deep Breathing," "Progressive Muscular Relaxation," and the steps leading to the "Relaxation Response" are three good techniques that can help you to relax our body and manage the symptoms of the fight-or-flight response.
- With imagery, you substitute actual experience with scenes from your imagination. Your body reacts to these imagined scenes almost as if they were real, calming you down and letting adrenaline disperse.

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Lets practice now.....

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## Appendix L: Brochure to comparison group

Brochure to comparison group (outside)

### Apa yang harus dilakukan apabila anda **marah**

- Bertenang... tarik nafas dan lepas perlahan-lahan
- Kenal pasti punca anda marah
- Mendapat nasihat orang lain
- Beredar ke tempat lain bagi mengawal kemarahan
- Berbincang dengan ahli keluarga atau rakan
- Membiasakan diri memaafkan dan menerima kenyataan bahawa manusia juga melakukan kesalahan

### Amalkan **10B**

- Bertenang
- Bernafas dengan dalam
- Berkata :relaksilah...
- Berbadat
- Bercakap dengan seseorang
- Berurut
- Berehat dan mendengar muzik
- Bertadiah
- Bersenam
- Berfikiran positif

### Kenali & Tangani **STRES** Anda

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## Pengenalan

Stres ialah tindak balas fizikal, emosi dan mental kepada perubahan. Stres merangkumi tekanan, beban, konflik, keletihan, ketegangan, panik, perasaan gemuruh, kebingungan, kemurungan dan hilang daya yang biasa berlaku apabila berlakunya perubahan pada tubuh badan atau fikiran sendiri.

## Kenapa anda stres

- Diri sendiri - kecewa
- Keluarga - masalah rumahtangga, kewangan, anak dan sebagainya
- Pekerjaan - tidak cemerlang dalam kerja, tidak naik pangkat, dibuang kerja, kena tukar dan sebagainya
- Komuniti - bertengkar dengan jiran
- Kesusakan lalu lintas
- Persekitaran yang tidak selesa
- Tragedi
- Menunggu lama



## Tanda-tanda stres

- Jantung berdegup kencang
- Cepat marah
- Rasa tidak gembira
- Hilang selera makan
- Hilang minat kerja
- Tidak cukup tidur
- Suka menengking
- Cuba jauhkan diri



## Appendix M: Photos of interventions delivery (workshop and counselling)

### Interventions

#### EAP for Stress Management Workshop





## EAP Individual Counselling and Stress Relaxation Therapy





